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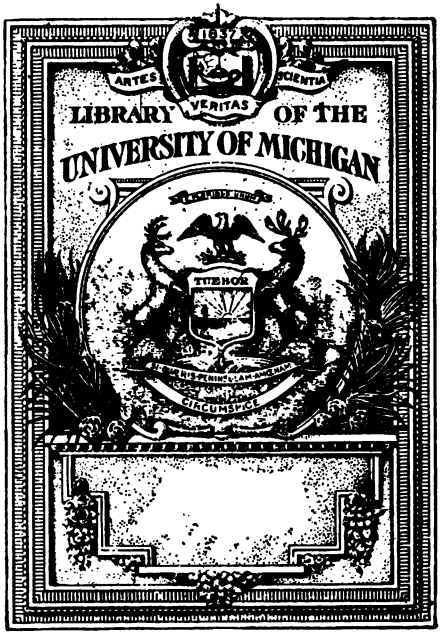
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The Modern Teachers' Series

Edited by WILLIAM C. BAGLEY

FUNDAMENTALS OF EDUCATION

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The Modern Teachers' Series

FUNDAMENTALS OF EDUCATION

BY

BOYD H. BODE

PROFESSOR OF EDUCATION

OHIO STATE UNIVERSITY

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PREFACE

THE purpose of this volume is to interpret present-day educational problems from the standpoint of pragmatic philosophy. The discussion is centered chiefly on two main topics; viz., the aims or ideals which should be dominant in education, and the nature of the mind or intelligence with which education has to deal. The book is written in the conviction that educational theory and practice have been vitiated by preconceptions which were historically inevitable but which are unjustifiable in the light of modern knowledge. These preconceptions must be eliminated if education is to make its proper contribution towards the enrichment of life and towards making the world safe for democracy. The development during recent years of scientific method in the field of education has brought with it a comparative neglect of the more fundamental issues. For the time being this shift of emphasis towards scientific investigation was probably desirable. Its effect has been to place educational research on a permanent basis. But unless the study of detailed problems is properly correlated with theory, there is serious danger that education will simply become more complicated, and perhaps more mechanical, and not an agency of progress and reform.

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In preparing this book I have been under constant and very extensive obligation to the writings of Professor John Dewey. I also owe a great debt to Professor W. C. Bagley, who, through his published works and through personal contact, has been the source of much suggestion and incentive, without which this book would perhaps never have been written.

B. H. B.

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EDITOR'S INTRODUCTION

THE serious study of educational problems may be undertaken from several points of departure, each of which represents a special point of view and, generally speaking, a distinctive method of investigation. During the past twenty years notable progress has been made in the "scientific" study of education, and the literature in this field, especially in connection with educational psychology and educational measurements, has now grown to large proportions. A second type of study which employs the historical method and aims to trace the genesis of educational theory and practice has been much less in evidence, although a few contributions of outstanding significance have been made in recent years. A third field even less conspicuous in so far as the number of its recent contributions is concerned is that which the present volume represents,—the philosophy of education.

The teacher will profit by an acquaintance with all three of these fields. Certain of his problems can be solved only by the type of objective analysis and experimentation that the scientific method involves. He wishes to know how well he has accomplished what he has set out to do: the measurement of his work is his recourse here, and the scientific study of education will

furnish him with at least a few dependable measures. He wishes to know how to classify his pupils and how to treat the various groups: the science of educational psychology will give him many helpful suggestions. He wishes to know how teachers in the past have met and solved their problems: the history of education will supply this information.

There are, however, questions which neither the science of education nor the history of education will satisfactorily solve. Science will help the teacher to realize his aims and ideals; history will tell him the aims and the ideals that his predecessors have striven to realize and how they went about it; but what should be the aims and ideals back of his own efforts? What should present-day education attempt? What standards of value should determine the materials of the curriculum, the organization of his school, his methods of instruction, his own intimate, and probably influential relations with his pupils? These are not only recurring questions; they are fundamental questions.

A study of the philosophy of education will not and should not answer all of these questions for the teacher, but it should do much to enable him to answer them himself. This has always been the spirit of Professor Bode's own teaching, and he has succeeded admirably in making this the dominating spirit of his book.

In American education there is a growing tendency to give to those actually engaged in the work of teaching a larger and larger voice in determining the edu-

cational aims and ideals that the schools shall reflect and realize. It is essential, therefore, that the professional education of the teacher should provide abundant opportunities for reflection upon and discussion of these fundamental questions. This does not necessarily mean that a course in the philosophy of education should precede all other courses in the preparation of teachers; there are, indeed, many good reasons for placing the systematic study of these questions toward the close of the pre-service training in the normal school or the teachers college.[1] But before the teacher enters upon his professional work he should have had the opportunity and the stimulus to think through some of these fundamental questions and to lay for himself a provisional foundation of guiding principles. He will also find it profitable and wholesome to return now and again to such a study to the end that he may consider varying points of view and revise his own position when convinced that it is untenable.

In both the pre-service and the in-service education of teachers, then, Professor Bode's book should find a useful place.

WILLIAM C. BAGLEY.

[1] See a discussion of this problem in Bulletin No. 14, Carnegie Foundation for the Advancement of Teaching, pp. 182–183.

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CHAPTER I

THE MEANING OF EDUCATION

THE usual procedure, in most of our human affairs, is to do the things that need to be done and afterwards to construct a theory in order to explain just what was done and why it was done. Men engaged in farming before they had a science of agriculture; they treated diseases before they had a science of medicine; they divided up the surface of the earth before they had a science of geometry; they investigated and debated before they had a science of logic. The need of theory does not become apparent until it is found that the results of our labors do not tally with our expectations. The crops fail to produce a yield, the remedies fail to effect a cure, the methods of determining boundary lines result in disputes and conflicts, the search after truth does not deliver us from the bondage of error, delusion, and superstition. In the light of the outcome we realize the need of examining our procedure in order to ascertain what has gone wrong, or perhaps to find out more in detail just what we were trying to do, and to formulate a more adequate mode of procedure. We turn, in short, from practice to theory in order to make our practice more effective than it was before.

The history of education is an illustration of this rule. Education as a practice extends back as far as the beginnings of human existence. Even in the lowest forms of human society some education is required for the perpetuation of the community life. The child must learn how to make clothes and utensils, how to hunt and fish, how to raise crops, and how to comport himself as a member of his group. But this learning is accomplished without any necessary reference to theory, and even without any significant use of formal educational agencies. The individual becomes educated and acquires membership in his community through direct participation in the practical affairs of life, through sharing in the activities that are already going on. He learns the arts of hunting, of agriculture, or other needful pursuits, by taking part in them; he learns by doing. To a considerable extent the system of apprenticeship was aimed at the same method of learning. The boy became a carpenter, a cobbler, a tailor, by making himself as useful as he could and acquiring skill as he went along. Education on this level tends to be a hand to mouth affair, with little occasion for reflection on the aims and methods that are involved.

As life became more complex, however, these simple and easy forms of education became increasingly inadequate. Even in a system of apprenticeship a boy must have a certain preliminary educational equipment, such as is commonly associated with the three

R's, if he is to have a fair chance. And this need of preliminary training is considerably greater in certain other callings. An illiterate boy would hardly get very far in law, engineering, or medicine, by direct association with those who are engaged in these pursuits. Instead of sharing in these activities directly, he must begin a long way back. Moreover, he must be trained in the moral, social, and religious traditions of his community or group. Education thus becomes a distinctive and separate undertaking, in which the emphasis inevitably shifts from the achievement of immediate ends to the understanding of the principles that underlie the affairs of adult life. The school training of the prospective carpenter and contractor is less concerned with the building of houses than with measurements and computations, with the qualities of wood, with the sources of the lumber supply, with the conductivity of sound and heat, etc. Besides, the specific vocation frequently remains to be determined later, so that education becomes even more detached from immediate ends. Hence there emerges the ideal of learning that is broad and flexible, capable of application to a diversity of situations; i.e., the ideal of a "general" education.

The conception of general education, then, is made necessary by the gap between the life of the child and the life of the adult. But this is not all. Some things that are done by adults are rated as good, while others are condemned as bad. We endeavor to keep the bad

things out of the school environment and to give as much encouragement as possible to those which are good. Certain forms of gambling and burglary require considerable skill, but formal education is not intended to impart such skill. Evil pictures, evil books, evil language, are banished as inconsistent with the purpose of the school. That is, the school does not undertake to prepare for adult life as it actually is, but for adult life as idealized and refined. Education is employed as an agency both for conserving the past and for "progress and reform." But, in order to do this, we must have some standard by which to choose between the good and the bad. When education becomes a distinctive undertaking, a formal affair, it brings with it the need of reflection on the aims and values of life. It becomes necessary to appeal to theory in order to secure guidance for practice.

The problem that emerges at this point is a problem of the first magnitude. What is the supreme good or the highest aim of life? All sorts of aims have been proposed, varying from crass utility to the glory of God, or preparation for a life to come, but it has never been possible to secure agreement, and the prospect of agreement is now apparently as remote as ever.

Perhaps the most promising approach to this difficult problem is by noting first how aims arise and how they function in human experience. It is a familiar fact that among the lower animals reflex and instinctive movements, which are more or less mechanical in

character, often take the place of conscious purpose. Birds migrate and build nests, chickens peck and scratch and run to cover, ants and bees maintain complicated domestic establishments, without being guided in any appreciable degree by purposes or aims. Consequently there is no continuous development of aims, which means that there is no progress, no civilization. In contrast with these lower forms of life, the human infant is peculiarly helpless and dependent upon learning. Unless it can discover the meaning of things, so as to act with reference to ends or aims, it cannot secure the adjustment that is necessary for survival. Human beings possess many and varied impulses or tendencies, but these are not provided with fixed lines of discharge laid down antecedently in the nervous system, and for this reason foresight and purpose are necessary, if these tendencies are to find expression. The fact that the mode of response is not fixed, as in the case of reflexes and instincts, means that expression is possible in a variety of ways. Mechanical ability, for example, may express itself in playing with blocks, or in building a boat, or in constructing a cantilever bridge. That is, the expression of our native capacities has no ascertainable limit. It constantly takes on new forms, in the measure that we learn more about the nature of our environment and are so enabled to use it for the realization of our ends.

This dependence of conduct on "meaning" is familiar enough. To burn one's fingers, to get scratched by the

cat, or to quench one's thirst at the drinking fountain, is to discover new meanings, which are then used for the guidance of conduct. Aims spring from the soil of experience, and new aims constantly arise as experience develops. Experience consequently has a marvelous flexibility and capacity for growth. The whole mass of human achievement has its origin in the fact that experience constantly suggests new possibilities, new ventures. The rolling stone suggests wheels, the snap and twang of a stretched cord suggest bow and arrow and stringed music, the dead leaf carried upward by the hot air of a bonfire suggests balloons and traveling in the air. The use of old experience for new ends is the commonest of facts; man is a born schemer and contriver. An invention like the steam engine inevitably becomes the parent of other inventions, such as the locomotive and the steamship, which in turn make possible all sorts of commercial and industrial projects; and this development is typical of what takes place in every walk of life. We seek that which we have set our hearts upon, and other things are added unto us. It is never possible to forecast the full significance of an achievement or to anticipate the uses to which it may be put. Growth in knowledge and experience opens up new possibilities in geometric ratio, as shadows lengthen with the approach of sunset. We do not come into the world with a set of antecedent aims, but we develop aims and devise means for the realization of these aims as we go along.

How aims and ideals of a political and social kind grow and become transformed in the course of experience may be illustrated briefly from our own history. Our fundamental political creed has always been democracy. But at the time of the Revolution democracy did not mean what it means at present. Its meaning at that time was (to put it roughly) political equality for white men. As a result of the Civil War this meaning became enlarged so as to include all men, without regard to race, color, or previous condition of servitude. Still later came a period of economic readjustment, in which the meaning of democracy became expanded so as to include the idea of fair and just economic opportunity. This meaning, however, proved still too narrow for the ideal of a world made safe for democracy; and the meaning of democracy was accordingly extended so as to suggest that it means the application of the Golden Rule to all the collective undertakings of life. The name was retained throughout, but the ideal designated by the name was in continuous growth and change; and this development is typical of the process by which both the individual life and national life become enlarged and enriched.

Now as to the bearing of all this on the question of aims in education. What was emphasized in the foregoing discussion is the fact that life is a process of growth. Human beings constantly utilize previous experiences for the creation of new aims, new ideals, new opportunities; and in so doing they give more fulness,

more richness, to life, they make life more worth living. We call this progress, because there is more "to" the life of the civilized man than to the life of the savage; there is vastly more opportunity for the expression of latent capacities and energies, which is what makes life worth while. Inside the schoolroom much the same process is going on. In learning the meaning of things the child is creating for himself a new environment, as a result of which new opportunities and new incentives are secured and the value of life is enhanced. To be sure, the race acquires its experiences slowly and painfully, whereas the school life of the child is spent in a selective environment, in which the materials are arranged and organized in such a way as to facilitate growth. The child's activities are guided and directed, so that by the time he reaches maturity he has traversed the whole ground and finds himself in the foremost ranks of time. But this difference does not contravene the fact that education is growth, that it is a process in which appreciations, aims, and ideals develop and expand.

Whatever else we may say about it, then, education is a process of growth; it means a liberation of capacity. The aims that we set up in education are just guides and signposts to indicate the direction in which this growth is to take place. These aims are legion. As one writer says: "To lead this boy to read Scott's novels instead of Old Sleuth's stories; to teach this girl to sew; to root out the habit of bullying from

John's make-up; to prepare this class to study medicine, — these are samples of the millions of aims that we have actually before us in the concrete work of education." [1]

It is evident, however, that this does not take us very far. Some aims are good and some are bad; some have considerable significance or value, while others have not. What is needed is some principle or standard for selection. And so a variety of ultimate or final aims have been proposed, such as culture, discipline, citizenship, utility, knowledge, moral character, and a host of others, for the evaluation of educational materials.

The fact that there are so many "ultimate" aims justifies a feeling of misgiving and suspicion. Generally speaking, all these aims are worthy and desirable; it is only when any one is set up as the supreme aim that it becomes objectionable. The reason is that an aim which is accepted as supreme or all-inclusive tends to place an undesirable restriction on growth, by turning it too exclusively in one direction. In some cases, indeed, this restriction is deliberately made a part of the aim. There are, for example, many communities in this country that are eager to transmit to their children the language, the traditions, the ideals, the creeds, in brief, the general outlook upon life, which the founders of these communities brought with them as immigrants from Europe. The educational system

[1] Thorndike, E. L. — *Education*, p. 17.

is accordingly organized with this end in view; and to prevent these distinctive traits from becoming immersed and lost, the disposition is sometimes fostered in the community to fence itself off from all unnecessary contact with the outside world. An education of this sort may be fairly extensive and yet disagreeably lopsided. An individual thus trained is in America but not of it; he is unable to share in the national life round about him because of his educational deformity. While this is doubtless an extreme case, the same tendency is discernible wherever an aim is exalted to a position of supremacy over the rest. It is most easily seen, perhaps, in connection with the ideal of utility. When the spirit of materialistic utility becomes rampant, conditions become unfavorable for the cultivation of literature and the fine arts, or for manners and morals. The aspirations and enthusiasms of men become atrophied. O. Henry tells of a cattle-man who, when he had made a fortune, could think of no use for his money except to buy saddles with it. Training may prevent growth. The other-worldism of the mediæval period, which directed men's attention away from the natural sciences and from the study of social conditions, undoubtedly cramped their outlook and their sympathies. The conventional ideal of culture, which was borrowed from the Greeks and which has played so significant a rôle in education, likewise imposed serious limitations, in that it perpetuated the aristocratic tradition by encouraging the cultivation of the intellect and

the sensibilities, apart from the more active and practical concerns of men. Each of these ideals represents a truth, perhaps, but it is not the whole truth. If we set up any one of them as the all-inclusive end of education, we do violence to the rest. Life is more than vocation, more than culture, more than knowledge, more than citizenship. All these interests, to be sure, are interwoven in an endless tangle, so as to give some color to the notion that some one of them may be the final end, for which the others serve as means. It is evident, for example, that vocation and knowledge are necessary for good citizenship. But the converse is also true; and in any event, our perspective becomes distorted if we accord no value to knowledge or vocation except that of means to an end.

In view of this situation the suggestion presents itself that our best clue to the educational problem lies in the concept of growth. Perhaps the most desirable and significant educational ideal for us to adopt is that of fostering intellectual and spiritual growth. If this be the case, then the aim of education, in so far as education can be said to have an inclusive aim, is to provide as adequately as possible for the creation of new aims. As was said a moment ago, life is a process in which the present is continuously enlarged and transformed. Present achievements become stepping-stones to further achievements; present appreciations prepare the way for further appreciations; present growth gives capacity for further growth. To set up

fixed, inclusive ends in advance is to ignore the fact that life is too varied and too expansive to observe such limits. Our horizon retreats as we proceed, our aims and ideals change with the changes in our environment and with our growth in intellectual stature. It is precisely in this progressive self-expression, this enlargement of capacity, this continuous enrichment of experience, that life finds its fulfilment and its sufficient excuse for being. Education, too, means growth; why not convert the fact into an ideal?

Taken abstractly the concept of growth is, of course, too empty to furnish any guidance for educational practice. Since, as a matter of fact, all education, whether good or bad, is a form of growth, the concept of growth, when set up as an ideal, must mean a certain specifiable kind of development. A considerable part of this book is just an attempt to make this concept definite and concrete. But the general character of this concept or ideal may be indicated at this point. The ideal of growth was suggested as an escape from the narrowing tendencies of other ideals. An education is narrow if it provides development in one direction in such a way as to put up barriers to development in other directions. If there is a one-sided emphasis on utility, or discipline, or some other end, the capacity to understand and appreciate other things is impaired or perhaps wholly lost. The result of such training is exemplified in the mathematician who did not care for Tennyson's *Charge of the Light Brigade*, because it "didn't prove any-

thing." The ideal of growth means training of such a sort as to facilitate understanding and appreciation of all human interests. The ideal requires that things be taught in their "social context," which means that they must be presented in such a way as to illuminate human life in general. The mathematician just mentioned was trained narrowly, not merely because he had neglected the study of poetry, but because he had not even studied mathematics properly, from the standpoint of the ideal of growth. Why do men study mathematics? Partly, no doubt, for its utility. Partly, too, because they like to solve problems, as others like to solve puzzles. But it also gives an insight into the orderliness and scope of natural processes, which has led some mathematicians to say that "God geometrizes"; and this desire to understand has made mathematics a vehicle of aspiration and imaginative effort. When mathematics is studied in such a way as to reveal what it has actually meant in human experience, it quickens instead of deadens our sensitiveness to practical, esthetic, and moral interests.

The ideal of growth, then, calls for "social context," in the sense that the subject must be presented in such a way as to show what it has meant in the experience of men. Physiology, for example, has a bearing on health, but this is only a small part of its meaning. It may also give us a "realizing sense" of what scientific procedure has meant in the elimination of superstition and the improvement of human well-being; through

its bearing on sanitation and hygiene it may give us a new sense of social obligations; through the study of the wonderful adaptations and economies of nature, particularly on a background of evolution, there may come a tremendous widening of the horizon and a powerful appeal to the imagination and the esthetic sensibilities. If taught in this all-round way, the subject prepares for all sorts of appreciations and applications that are unforeseen at the time. All the other subjects in the curriculum are in a similar case. History lends itself equally to rigid, scientific research and to the cultivation of moral and dramatic discrimination. Literature may be studied in its concrete, human context and so become the expression, not only of artistic qualities, but of a complex social, economic, and political background. Mathematics, through the precise use of technical terms and through concise and systematic exposition, may be made to afford valuable training in method; and its "beautiful demonstrations" carry an unmistakable esthetic appeal. These results, it is needless to say, are not obtained automatically. They are not realized, except incidentally and in spite of the teacher, unless the material is so used as to bring them about. They must be pointed out and clothed in flesh and blood by the use of description, application, illustration, and whatever other resources may be at the disposal of the teacher.

With such a variety of possible values inherent in the subject matter, it is evident, furthermore, that

different pupils in the same class may get very different results as to the kinds of value that are secured. To one pupil the abiding result, after a study of Cæsar's wars from Latin texts, may be a taste for language; to another it may be an interest in strategy and tactics; to a third a sense of the superiority of civilized man in his unswerving devotion to a purpose. The subject may be made to serve as an instrumentality for securing a wide variety of educational goods; and it is impossible to say in advance which of these will prove to be of the greatest significance in the life of the pupil.

If educational materials are presented in this way, we conserve our spiritual heritage and make provision for the exigencies of the future. We cannot solve the problems of life in advance. We cannot instruct pupils how to vote or how to invest their money twenty years hence; we cannot tell them which friendships to cultivate, which books to read, which magazines to take, which side to support in social and political movements. What we can do, however, is to acquaint them with the main things that should be taken into account, as based on the experience of the race, so that they may have a proper sense of values when they are called upon to make their own decisions; and it is in this sense that we can provide a general education.

The fact that an aim or ideal has won acceptance may ordinarily be taken to mean that it represents a value which has been tested in human experience and has proved its worth. To disregard the experience of

the past would be evidence of stupidity. But it is man's prerogative to look before as well as after; and unless we cultivate the disposition to give frank and cordial recognition to new values and possibilities as they may arise, we become the slaves of tradition. The significance of new achievements is then overlooked; they are regarded, not as intrinsically valuable, but, at best, as merely means for the realization of values that are already recognized and accepted. For Aristotle the practical affairs and duties of life were of value chiefly or essentially because they made possible the cultivated life of leisure. They were just means to an end, and not intrinsically valuable. Perhaps there was much to be said for this at the time, as much might be said for such a view even now, in the case of certain occupations, where the subdivision of labor has made the individual little more than a mechanism. As things now are, some jobs have little value, except as means to the weekly pay check. But this attitude of mind persisted indiscriminately for centuries after the period when Aristotle wrote, so that industry and commerce, even after they had undergone a development of stupendous complexity and potentiality, were still looked down upon as fit only for *hoi polloi*.

For education this development meant a magnificent opportunity. When commerce and industry became so intertwined with the lives of individuals and nations as to afford splendid possibilities for the spiritual devel-

opment of those engaged in them, education should have been the first agency or institution to recognize this fact and to exploit it for its own purposes. But it was so wedded to the past that this recognition was impossible. The idea that life is a "wide-open" affair and that man may become humanized and spiritually enriched through an intimate, sympathetic understanding of these human concerns on a wide scale, had gained no real foothold. And so the tradition continued that a liberal education consisted in the cultivation of certain appreciations, which remained more or less detached from the great world of affairs, to the detriment of both education and "practical" life. Education became a citadel of seclusion, which provided surcease from sorrow for some and encouragement for the exhibition of snobbery for others. As a result, the world of affairs remained blind to its opportunities and spiritual significance. The notion that the things which ennoble and enrich life must be sought outside of business was widely accepted by business men themselves. That commercial and industrial affairs should be run on the principle, 'There is no sentiment in business' was regarded, if not as axiomatic, at least as natural and excusable. The purpose of business was to 'make one's pile.' In other relations of life these men were frequently humane enough. We have become fairly well accustomed to the spectacle of philanthropies sustained in a spirit of sincere good will with fortunes that were accumulated by processes which showed

neither pity for vanquished competitors nor special consideration for employees.

For a considerable time science was in much the same state as industry. Training in science was compared unfavorably with training in the classics. Perhaps this was due in part to the character of early scientific teaching, but it is undeniable that the possibilities of science as a humanizing agency, through an appreciation of its importance for our outlook upon the world and for an understanding of everyday life, were largely neglected. The notion prevailed that spiritual values must be cultivated outside of science, as outside of business. Even so keen a critic as Matthew Arnold was apparently unable to rid himself of the preconception that business was nothing but machinery, and that science was just cold intellect, divorced from moral and esthetic enthusiasms. These, he holds, must come from the study of "humane letters," and so he argues that the familiar "classical" type of education must always have first place in our educational scheme.[1] The many-sidedness of science escapes him entirely. In Arnold's view, as a commentator describes it, "science puts before the student the crude facts of nature, bids him accept them dispassionately, rid himself of all discoloring moods as he watches the play of physical force, and convert himself into a pure intelligence; he is simply to observe, to analyze, to classify, and to systematize, and he is to go through these processes

[1] Cf. Arnold's essays: *Literature and Science* and *Sweetness and Light.*

continually with facts that have no human quality, that come raw from the great whirl of the cosmic machine. As a discipline, then, for the ordinary man, the study of science tends not one whit toward humanization, toward refinement, toward temperamental regeneration; it tends only to develop an accurate trick of the senses, fine observation, crude intellectual strength. . . . Literature nourishes the whole spirit of man; science ministers only to the intellect." [1]

The passage just quoted presents a striking instance of what may happen if education is not alive to the possibilities of its subject matter. The claim that science deals with "facts that have no human quality" can be made only by a mind that is itself singularly obtuse to human quality. Sensitiveness to human quality is not the exclusive product or possession of any subject or special group of subjects; it is the natural result of teaching which takes due heed of social context, so as to nourish "the whole spirit of man." Unless this sensitiveness is made an ideal — which is just another name for the ideal of growth — there is always the danger that some values will be neglected and thus a certain cleavage created between education and life. If education is to avoid the besetting sin of one-sidedness, it must maintain an attitude of watchful regard for the possible values of experience, in order that all experience, as far as may be, may contribute to the enrichment or betterment of life.

[1] Gates, L. E. — *Selections from Matthew Arnold*, p. xxvi.

The gist of the preceding discussion may be stated briefly as follows: When formal education becomes necessary in order to fit the individual for his place in the social order, there arises a need for reflection on the aims and purposes of education and of life. Many aims have been proposed, but if we view intelligence from the standpoint of development, the conclusion is indicated that aims are constantly changing and that the most significant clue for education lies in the concept of growth. Education is, as a matter of fact, the liberation of capacity; or, in Bagley's phraseology, it means training for achievement.[1] To make this liberation of capacity, or this process of growth, a controlling ideal means the cultivation of sensitiveness to the human quality of subject matter by presenting it in its social context. The fact that a given type of education is classed as liberal or cultural is no guarantee that it fosters this quality of mind. Unless this sensitiveness is deliberately cultivated, many human interests, such as business, science, and technical vocations, do not become decently humanized. And to cultivate this sensitiveness deliberately means that it is made the guiding ideal for education.

From this standpoint it is evident that we must look to the concept of growth for our standard by which to judge educational values. It must indicate to us what sort of education is to be desired and why. It necessarily determines our judgment of values and method

[1] Bagley, W. C. — *Educational Values*, p. 114.

of procedure throughout; since, in the end, educational theory is but the elaboration and application of the conception that embodies our understanding of the meaning of education.

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CHAPTER II

EDUCATIONAL VALUES

In a discussion of values it is customary to distinguish between *intrinsic* and *instrumental* values. When we set out to realize an aim, we may do so because the end that is sought has a value on its own account, it is something that is directly appreciated. Men seek fame, wealth, power, comfort, and luxury, because these things have an immediate value, which requires no explanation or justification. As James remarks: "Not one man in a billion, when taking his dinner, ever thinks of utility. He eats because the food tastes good and makes him want more. If you ask him *why* he should want to eat more of what tastes like that, instead of revering you as a philosopher, he will probably laugh at you for a fool." [1] Such things have an *intrinsic* value; they explain themselves. But these things which are immediately valuable may, in addition, have a further value. A man's dinner normally serves to maintain his health and strength; his fame may bring him wealth and desirable friendships; his power may enable him to promote pet schemes, or to reward his friends and punish his enemies. Over and above their intrinsic value, these things possess an instrumental

[1] James, W. — *Psychology*, Vol. II, p. 386.

value, in that they make possible the realization of other ends the value of which is immediate or intrinsic.

This contrast between intrinsic and instrumental values affords a convenient and useful distinction, provided that we recognize its limitations. It must be borne in mind, in the first place, that both kinds of value may be combined in the same thing. A person may be keenly interested in things pertaining to music or engineering, partly because these subjects have a natural fascination for him and partly because they enable him to make a living. And, secondly, there is such a thing as an immediate or intrinsic appreciation of instrumental values. We may realize, for example, that a new invention is "beautifully" adapted for its purpose, or that a certain kind of knowledge, such as chemistry or mathematics, has a splendid utility for certain purposes. To say that we realize this is to say that our awareness has the quality of appreciation, of the sort already indicated in connection with intrinsic values. The point is important, owing to the prevalence of the notion that appreciations are to be cultivated only in connection with certain subjects, such as literature and the fine arts. In opposition to this view it is necessary to insist that appreciation in some form is an indispensable element in all effective education.

Whether the activity in which we are immediately engaged springs from the perception of intrinsic or of instrumental values depends on circumstances and on

native preferences. The invalid may eat his dinner with an effort, because he knows that his system requires it; the philanthropist may seek wealth, not in order to be rich, but to do the things he wants to do. In these cases the dinner and the wealth, respectively, are desired solely for their instrumental value. Or, as has been said, the end that is sought may have both kinds of values, as when a man desires wealth, both for its own sake and for the sake of other ends. What these other ends will be is frequently more or less undetermined. As regards educational values, for example, we cannot tell beforehand what uses a person is going to make of his knowledge of French, yet we may be quite sure that the opportunities will be more numerous, and more varied than they would be if he had studied Choctaw instead. In other words, it is both possible and necessary to compare educational values so as to secure most effectively and economically the ends that education seeks to realize.

Such comparison, it will be observed, has to do with instrumental values; i.e. with the relation of present aims to future aims. So far as intrinsic values or immediate appreciations are concerned, there does not seem to be much point to such comparisons. One person has a bent for mechanics, another for music, a third for mathematics, a fourth for language and poetry. Life fulfills itself in many ways. But which is the better or of the greater worth? To the born poet literature offers itself as the best thing in life; but to the born

mathematician there is nothing that can compare with mathematics. An argument between two such persons as to the relative values of such preferences would seem as fruitless as a discussion between an elephant and a tiger as to the comparative merits of vegetarianism and a meat diet.

The case is different when we turn to a consideration of instrumental values. Mathematics is clearly of more importance for engineering than is history, while on the other hand history is more important for journalism or politics than is mathematics. The suggestion has accordingly been made that we draw up a list of the chief educational values or "objectives," consisting of such headings as vocational utility, discipline, scientific method, esthetic sensibility, sociability, etc., and then use these objectives as a basis for the selection of subject matter. Thus vocational subjects would be chosen for their utility; the natural sciences would furnish training in method; literature, music, etc., would provide for the development of taste and imagination; and history would give an insight into human relationships. It is assumed in this proposal that each subject has a peculiar fitness for realizing a specific educational end, which furnishes us the necessary clue for the selection of subject matter.

Further consideration, however, tends to raise doubts. It was pointed out in the preceding chapter that the different subjects in the curriculum have a variety of aspects, which makes it impossible to say offhand that

a given subject will serve better for the realization of one of these aspects than another. Vocational training and the sciences have, for example, as well as literature, an element of imagination and appreciation; and, as well as history and civics, a social bearing. In fact, a variety of "objectives" can normally be realized in connection with any given subject. Even a subject like writing can be made to serve the interests of the esthetic sense and of conscientiousness or pride of workmanship, as well as of plain utility. We have no basis for the selection of subject matter until it has been decided which kind of "sociability" or "beauty," or other quality is to be cultivated. Is the appreciation of classic poetry and statuary, for example, more to be desired than the emotional thrill arising from the contemplation of an artistic bathtub or a blue-ribbon Poland China hog? Is the knowledge of human relationships afforded by history more valuable than that which springs from participation in athletics or from membership in a whist club? Does work in plumbing or typewriting have more utility than has work in economics or the sciences? The objectives, as they stand, are simply abstractions which include things that are not only diverse but even incompatible. Ideals of social organization or "sociability" vary all the way from communism or anarchy to absolute monarchy, just as taste in music ranges from the sorriest ragtime to classical compositions. Calling them by the same name is not equivalent to providing an aim or standard.

The practical way of avoiding this difficulty is to make the objectives more specific by taking meanings upon which there is already some sort of agreement. Appreciation or beauty is taken to mean literature and art; sociability is supposed to refer chiefly to history and political science; scientific method is a name for the method of the physical sciences. Each objective, therefore, has its own special subject matter. From this standpoint there is no place for "beauty" or "sociability" in a subject like economics, which must be limited to some specific objective, such as "wealth" or "scientific method." What is left is science made dismal. It is impossible to bring in other objectives without conceding that there are different kinds of "beauty" and "sociability," which would mean that our objectives had once more ceased to be specific.

If it be granted that a single subject will ordinarily serve for the realization of various objectives, the whole perspective changes. The objectives are then used to get as rich a meaning as possible out of the subjects, which means that they become hints or indications to the various possible meanings. They point out the most obvious and most important meanings, but we are no longer limited to just those meanings. The real purpose becomes something else; viz., what we have previously termed the "liberation of capacity" or the ability to see the subject matter in a wide context of relationships, so as to provide a rich background for the interpretation of subsequent experience.

One reason, apparently, why the view under discussion has commended itself is that it has a pleasing appearance of dealing scientifically with educational aims. All that we need to do is to ascertain, presumably by some form of the *questionnaire* method, which aims or values are most worth while or most worthy of conservation. When this has been done, the rest of our task will consist in selecting the subject matter that is best suited to realize these aims. The procedure is engagingly simple and objective, because no account is taken of the need to provide for the creation of new aims, so as to facilitate the constant expansion and enrichment of experience. An attitude of this kind is more concerned to conserve the past than to ensure development in the future. Unless the subjects that are taught are set in a wide context of meaning, they remain relatively isolated and static, as in the cases, previously cited, of the traditional cultural studies and modern business. (See page 17.)

As was intimated a moment ago, it is not intended to imply that the listing of educational objectives serves no useful purpose of any kind. The point is simply that it does not provide us with acceptable aims and affords no principle for the selection of subject matter. A consideration of the objectives may be useful to the teacher for the purpose of securing hints or clues to the different values that may be realized in the study of any given subject. If used in this way, the objectives may tell us what to bear in mind, what to

emphasize, what applications to make. It is only when the assumption is made that a subject is intended to serve one of these objectives more or less exclusively that danger arises, for this assumption leads naturally to the neglect of other possible values and so tends to make the teaching of inferior quality.

In attempting a different approach to the problem of educational values, we may take as our point of departure the fact that intelligent behavior is conditioned upon the discovery of meanings. To some extent such discovery may doubtless take place through direct experience with objects; that is, without the intervention of any social agency. A child may discover for himself that thorns are sharp, that the couch is soft and comfortable, that the fire in the grate gives warmth; and so, for that matter, may the family dog. But in the main, education is a social affair, in the sense that it is dependent upon the discovery of the meanings that things have for others. The meaning of a hammer is understood when we grasp the purpose of the carpenter to drive nails; the meaning of a spade when we perceive that the soil in the garden is to be loosened and turned over; the meaning of pencil and paper when we understand their relation to writing and drawing. The rapturous possibilities of these objects would be nonexistent if attention to what others are doing had not endowed them with new meanings and thus made them stimuli to new modes of behavior. By taking heed of what others are doing, the child gains a mastery of the

means for the expression of the capacities with which he is endowed by nature. Through learning dance steps and songs he gratifies his sense of rhythm and music; through participation in family affairs he enjoys the sense of community or membership in his little group; and similarly it is through the sharing of aims and interests that he becomes a mechanic, a farmer, or a professional man. Speaking generally, we may say that education is a matter of gaining an understanding of the meaning which the things in our environment have to the members of our community.

This conclusion points to a standard for the determination of educational values. From the present standpoint, education may be described as a process of initiating the individual into the life of the community. Unless the individual can secure an insight into the aims and purposes of others, he does not fully participate in the life of the community. It is this widening of the horizon that gives life and gives it more abundantly. Since this larger and richer life is conditioned upon the understanding of our social environment, it would seem to follow that educational values may be compared on the basis of the degree of insight which they afford into the doings of others. What is fundamental must be judged by reference to the life of the group or community. Arithmetic, for example, is more fundamental than Latin, because relations of quantity or number must be understood if we are to get an insight into much of what our fellowmen are doing,

whereas it cannot be urged that an understanding of Latin is necessary to the same degree. Without a knowledge of numbers we should be shut out, to a much greater extent, from participation in whatever is going on than we should be without an understanding of Latin. Arithmetic will open ten doors where Latin will open but one. Within a given subject we can apply the same test. Some material has a wide and varied applicability, while other material, such as logarithms or bank discount in arithmetic, is more specialized and technical. As Dewey says: "The things which are socially most fundamental, that is, which have to do with experiences in which the widest groups share, are the essentials. The things which represent the needs of specialized groups and technical pursuits are secondary." [1]

This has sometimes been called the "social criterion" of educational values. The statement just given, however, is still vague. As it stands, it might be taken to mean that educational values are to be determined in a purely quantitative way, without regard to the environment in which the pupil happens to live. Proceeding in this way we should come to the conclusion that, since English is spoken more widely than Danish, a child in Denmark should study English in preference to its native tongue. Or it might be argued that, since American history concerns a greater number of people than the history of Switzerland, the former

[1] Dewey, J.—*Democracy and Education*, p. 225.

should have precedence in the Swiss schools. But this is obviously not what is intended. The reference to the social environment does not consist in counting noses, but in giving a broad outlook to the life that is lived by the pupil. Education, like charity, should begin in the vicinity of the home; the import of the social criterion is that it should not be limited to that vicinity. It is acknowledged that education is necessary to fit the child for participation in the life of the community, but such participation may be conceived very narrowly. The ideal of participation may be dominated by considerations of earning power, and have no reference to the requirements for continued growth. That is, education may be concerned simply to fit the child for a certain occupation or station in life, and make no provision for securing progressive enrichment of life. When such a conception prevails, the child's education may be considered as completed when a certain mastery of the three R's has been attained; or, if anything more is added, it must be of a strictly "practical" sort. No attempt is then made to secure a wider outlook by providing a historical and scientific background through which the everyday routine may take on new meanings and new possibilities. As against this, the present standpoint would hold that it is better, under normal circumstance, to teach the principles of plant growth than the knack of raising cabbages, and better to study national history than the political organization of the county and state. The general is to be preferred, pro-

vided that it illuminates everyday life and does not degenerate into the abstract learning which is not applicable to anything in particular and which is usually condemned as mere "book learning."

It appears, then, that culture, or broad comprehension, is not incompatible with vocational training. These two form a contrast only when vocational training has no other purpose than to prepare the learner to do certain specific things. To qualify, for example, as a stenographer in a law office requires a certain technical vocabulary, a certain rate of speed, and a certain degree of accuracy; to be a salesman requires a certain minimum arithmetical ability and a certain knowledge of the goods that are to be sold; to be a shipping clerk requires some knowledge of transportation facilities and perhaps some commercial geography. What these requirements are can be determined empirically, so that the content of the training can be made perfectly definite. Vocational training becomes a doubtful blessing when, putting aside all responsibility for further growth, it recognizes no higher aim than to place itself on the same definitely quantitative level as a factory and to turn out a product that can be guaranteed to have an equipment for the specific job for which it was intended.

This scheme, it may be added, is not necessarily limited to vocational training, but has been proposed for education generally. Let us find out, as definitely as possible, the precise amount of every subject that

the child needs to know, and then proceed to impart that amount. Whether applied to education in general or to vocational training in particular, this scheme looks upon education as preparation for a fixed and definite groove or pigeonhole, in which life goes on with a maximum of routine and a minimum of intelligence. It is a view that involves a whole philosophy of life. It regards life as having aims that are essentially fixed; it treats education less as an agency for the enrichment of life than as an instrumentality for "getting on," but with the implication that "getting on" means, not so much a constantly expanding horizon of aims and appreciations, as a constant gain in expertness within the narrow limits that were originally marked out in making the choice of occupation. Our hypothetical stenographer or salesman, for example, might be too deficient in general training to acquire understanding and appreciation of what his work or that of his firm really means when taken in its social context. The expansion of life, and the incentives to interest, service, and loyalty, which come from the larger view, are withheld from him; he is condemned to a life that is, by comparison, stale, flat, and unprofitable.

A training that does not provide for growth becomes a means for promoting a caste system, in which the thinking is done by a few, while the rest are not supposed to be in any need of a broad understanding. As soon as we undertake to provide for later growth; i.e., provide the general training through which it will be

possible to get insight into a wider range of activities, we are obliged to give up the original plan of mapping out a course of study by finding out just what is needed for a specific occupation. This shift of emphasis, however, does not mean the abandonment of vocational training, but the substitution of a different kind of vocational training. It means greater attention to the broad aspects and less attention, if need be, to the special features of the occupation for which preparation is made. The prospective plumber would relate his special knowledge to the principles of physics and mechanics; the prospective salesman would broaden out, perhaps in the direction of industry and economics. The point is that vocational training can move in either direction. It can utilize special knowledge so as to get a wider perspective, or it can follow a course of study in which the aim is not appreciation but efficiency and production, and which is content to limit the size of the man by the size of his job. Fundamentally, the issue in vocational training is the question whether the individual is to be regarded as a means or as an end, whether he is to be trained so as to become an effective mechanism or to cultivate experiences that bring progressive enlargement and fulness of life.

The obligation to make provision for progressive development in later life is the justification that lies back of what has been known of recent years as the doctrine of "common elements" or "minimum essentials." Unless the individual is so trained that he can

participate, intellectually and emotionally, in the larger activity of which he is a part, he is robbed of his spiritual birthright; and even the interests of efficiency or productivity suffer in the end. Systems of "scientific management" which place all the responsibility and initiative with the persons in charge, so a recent writer declares, have not been strikingly successful, for the reason that there is no intelligent coöperation, no real sharing on the part of the men. The system claims that "both managers and men are working under the control of science; yet, as a matter of fact, this science is mostly visible only to the management; and is little or not at all visible to the men. They see only the orders. The system represents a halfway step, however, towards actual and inevitable scientific management. Science rules in the planning-room; it must also rule in the consciousness of the workmen." [1] To quote again from Dewey: "An education which acknowledges the full intellectual and social meaning of a vocation would include instruction in the historic background of present conditions; training in science to give intelligence and initiative in dealing with materials and agencies of production; and study of economics, civics, and politics, to bring the future worker into touch with the problems of the day and the various methods proposed for its improvement. Above all, it would train power of readaptation to changing conditions so that future workers would not become blindly

[1] Bobbitt, F. — *The Curriculum*, p. 84.

subject to a fate imposed upon them. This ideal has to contend not only with the inertia of existing educational traditions, but also with the opposition of those who are intrenched in command of the industrial machinery, and who realize that such an educational system if made general would threaten their ability to use others for their own ends."[1]

It is not implied, of course, that the right selection of subject matter is sufficient to guarantee the result. No matter in what way or for what purpose a course of study may be constructed, the spirit of a narrow vocationalism may remain to plague us. The whole process may be guided by more or less vague notions of practicality, to the serious detriment of educational ideals. In penmanship, for example, the goal of legibility need not crowd out the aim of fostering esthetic appreciation and the ideal of neatness; in the study of language the aim of clear and correct expression need not conflict with the cultivation of an appreciation of language; in arithmetic the interests of the practical life are not sacrificed through the study of problems that introduce the learner to matters pertaining to astronomy, engineering, or the firing of long-range guns; in history the study of political, social, and economic development is not made less significant if combined with a study of campaigns and battles in order to arouse enthusiasm for lofty ideals and splendid personal traits and to impart a sense of what our present-day institutions and tradi-

[1] Dewey, J. — *Democracy and Education*, p. 372.

tions have cost in blood and suffering and treasure. The course of study may open up wide perspectives of possibilities to the learner, may give him new worlds for old; but, on the other hand, it may encourage the disposition to foster one set of interests to the neglect of others. The fruits of such an education are not, except incidentally, the catholicity of spirit and tolerance of attitude which are so vital to the life of a democracy, but rather an intensification of the very class spirit which is the ever-threatening danger of democratic institutions.

It is evident, then, that the ends of education require both intelligent selection of subject matter and sound ideals of teaching. The social criterion of subject matter does not, it is true, make selection a simple and easy matter. But we may remind ourselves that each community is already a "going concern," which means that there is an antecedent presumption in favor of the subjects which have secured a place in the curriculum. Subjects like the three R's, history, and geography, occupy an impregnable position, because the experience of the race has proved them to be invaluable and irreplaceable as agencies for widening or socializing the life of the individual. The antecedent presumption, however, must not blind us to the fact that the curriculum tends to preserve subject matter long after it has outlived its greatest usefulness. The status of subject matter may change considerably with changes in social conditions. Among the Greeks the art of disputation

was an important part of education, owing to the conditions that determined political leadership. At a later time Latin became indispensable, since, without it, there could be no entrance to the realms of higher learning. In the course of time science presented claims that could not be ignored, while French and German likewise took on a new importance. Still more recently the development of trade relations with South America has given to Spanish and to the history of South American countries an importance which these subjects did not previously possess. New subjects are constantly clamoring for admission, whereas the old material tends to hold its place, either through sheer inertia or because of some superstition as to its magic efficacy for certain educational ends. There is, then, constant need of criticism and revision, and for this purpose the social criterion furnishes the only trustworthy standard for evaluation.

This criticism and revision, it should be noted, is required not only in making comparisons among different subjects, but also within each of the different subjects. Here again the social criterion may serve as a guide. Subjects like history, geography, and the sciences should contribute to a better understanding of the social environment in which the pupil's lot happens to be cast; and this fact has a bearing on the content of these courses. Some material may lead to a much more significant widening of the environment than others. A biography of Lincoln, for example,

would have a much greater value of this kind than the biography of a local hero. The former would serve to give a better understanding of the negro question, of the relation between North and South, of present-day American politics and of American traditions and ideals, in so far as these were influenced by the personality of Lincoln; in brief, it could be used for a better understanding of an immense range of fact pertaining to the common life of the American people. In every subject there are wide differences in the relative values of the materials; and if these materials are taught without perspective, without any sense of relative values, education inevitably tends to become a burden and an affliction.

The foregoing remarks lead us directly to the familiar conclusion that the most important element in education is the teacher. It is true that the right education requires a variety of subject matter. It is likewise true that selection of subject matter and reflection on method are not only useful but indispensable. But the teacher must breathe life into the dead bones, and it is the teacher's task to create and foster the spirit of open-minded inquiry, the attitude of sympathetic yet critical interest in all matters of human concern, which is the finest fruit of education. When this fact is apparently overlooked, and reliance is placed instead upon machinery, one is tempted to agree with the spirit of Mr. Dooley's remark, to the effect that when you are sick it does not matter much whether you call in a physician

or a Christian Science practitioner, as long as you have a good nurse.

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CHAPTER III

EDUCATION AND DEMOCRACY

In the preceding chapter it was argued that educational materials must be evaluated on the basis of what was called the social criterion. The expression was used with some hesitation, because the term "social" has shown an unmistakable tendency to degenerate to the level of sinful jargon. We hear much nowadays to the effect that the meaning of education is fundamentally social, but the ambiguities of the term have made it more of a hindrance than a help to an understanding of education and of the significance of education for democratic ideals. However, the term "social" has come to stay, and so our only practicable course is to try to make the word "safe for democracy."

That the present emphasis upon the social embodies a new drift or tendency in education is doubtless a fact. Whether the word can be taken to indicate the precise direction of this tendency is, however, quite another matter. To all appearances the "social" is not so much a guiding principle as a slogan, the intellectual content of which is obscured by a haze of emotional appeal. Analysis of the concept has but a short way to go before it comes in sight of an alarming diversity of meanings. The social, we find, is sometimes identified with the

likemindedness that springs from interaction with our fellows. By this standard the lonely trapper or prospector is a social being by virtue of the fact that he has learned to prepare his flapjacks in the manner that is characteristic of all his tribe. Again a person is social in so far as his activities have reference to the attitudes or activities of other persons. From this standpoint the attempt to "show off," to make an impression on others, is a social activity, and a prize fight or a hold-up is properly regarded as a social event. The contrasting term here is not the antisocial, but the non-social. Most frequently, perhaps, the term "social" is applied to coöperative activities that are directed towards a common end. In this sense the Allies in the recent war were social in their relations to one another, but not in their relations to Germany. When used in this sense the contrasting term is not nonsocial, but antisocial. But we are also inclined to describe the attitude of the sincere statesman or reformer as social because inspired by the desire to promote the well-being of others, even when those who are to be benefited resent what is done in their behalf and unite against their would-be benefactor. That is, a man may be social, even though he stands all alone. He is called social not merely because his conduct has reference to the attitudes or activities of others, but because his conduct is the expression of a concern for the interests of others. Taken in this sense, social conduct is identical with moral conduct. Unless the word "social" is used

with discrimination, it is bound to prove less serviceable as a means to insight than as a cover for our academic sins.

The common element in these different meanings, it will be observed, consists in the fact that we learn the meaning of our environment by discovering what things mean to others. As a result of such learning, the individual is enabled to use things for his own purposes, to act with reference to others either by cooperating with them or by exploiting or opposing them, and, finally, to shape his conduct towards the end of conserving a maximum of the values or interests that may be involved in a given situation. The different meanings may perhaps be taken as a rough indication of the steps in the development through which the normal individual passes in becoming a fully developed member of his community. At the outset the infant learns without much apparent sense of either coöperation or opposition; presently the reference to the disposition and purposes of others becomes explicitly developed; and gradually there emerges a dawning sense of responsibility for human welfare, whether of friend or of foe, and whether the members of the group express approval or disapproval. To put it differently, these different levels suggest that the term "social" designates both a fact and an ideal. In so far as learning is conditioned upon grasping the meaning entertained by others, the social nature of education is a plain fact. It is social because the learner must adopt

the standpoint or attitude of someone else in order to comprehend the meaning of what is going on. The purposes of others are thus transformed to some extent into purposes of the learner. The point is exemplified in the story of the village idiot, who managed, after everybody else had failed, to find a horse that had strayed away. The matter was not at all difficult, as he explained afterwards; he had simply imagined himself to be a horse, and then had gone where a horse would naturally go. This ability to enter sympathetically into whatever is going on is a striking characteristic of children, and is an indispensable condition for learning. But if education is to achieve a maximum of growth, it is necessary to cultivate deliberately this attitude of sympathetic response to a constantly expanding range of interests. The ability to enter into a wide variety of human interests with spontaneous and intelligent sympathy is a difficult achievement, and from this standpoint the social is not a fact but an ideal.

This ideal of education is expressed in the fine classic sentiment: *Homo sum; humani nil a me alienum puto.* It is this quality of spirit that makes James's great *Psychology* so peculiarly a "human document." An outstanding trait of this work is the readiness with which the author responds to the endless variety of human impulses, from the level of the *roué* to the level of the saint, with all that lies between. What these impulses mean in actual conduct is intimately understood because the author dramatizes them in his imagi-

nation, as the novelist lives out the lives of the characters in his story. Out of association and coöperation with others there normally grows an appreciation of the purposes that others seek to realize, a sympathetic understanding of their struggles, their successes and their defeats. This insight may abide, even when the conduct of others is such as to arouse our disapproval. The prodigal son, for example, was doubtless a headstrong and erring lad, who should have behaved differently, but the "human quality" of the parable lies precisely in the fact that we can appreciate so thoroughly both the temptation and the disillusionment. We can see how it all happened, if we only care to make the effort; we can understand, even if we cannot condone. A complete antithesis is the parable of the Pharisee, who thanked God that he was not like other men. The Pharisee was too much absorbed in his own righteousness ever to understand why other men acted as they did, in much the same way that people who have forgotten that they were ever young themselves fail completely to understand the conduct of children. Yet it is precisely this sort of understanding which is needed to pass a just judgment and to make possible a higher righteousness than the righteousness of the Pharisee. This generosity of spirit is as far removed from maudlin charity as from plain vindictiveness. This ability to share imaginatively in all sorts of experiences, to regard nothing human as foreign to oneself, is just another name for that enrichment of life which functions in

the life of the individual as a moral ideal and in the institutions and practices of society as the ideal of democracy.

In order to trace the bearing of the foregoing discussion upon the concept of democracy, we may remind ourselves that, as a rule, ideals of conduct are determined largely by the accident of environment. If a boy engages in a fight and afterwards finds himself praised on all hands for his courage and endurance, the effect upon him will naturally be a glorification of fighting. The case is very different if public opinion takes the view that his conduct was vulgar and a disgrace to his family. The feature or aspect of the affair that is thus made prominent in his consciousness by the reaction of others tends to become more potent in the control of conduct, while other features lose their power. In case public opinion is unanimous, this result is virtually inevitable. The standards of the community are thus absorbed until they become bone of his bone and flesh of his flesh. A boy may thus learn to scorn sedentary occupations and to look upon interest in flowers, birds, and intellectual pursuits as unmanly; his attitude being something like that of the person who considered the writing of books a trifling occupation for a grown-up man. With a different environment he will discount physical prowess and attach greater importance to other things. In any case, the acquisition of ideals is, so far forth, an enrichment of life, but it must be remembered that the enrichment may carry with it a very

pronounced limitation. Certain things may be persistently ignored, so that development in those directions becomes virtually impossible. Most civilized communities are sufficiently diversified to furnish at least some encouragement to a wide variety of tendencies, but, given a community with narrow interests and outlook, the tendency to perpetuate its ideals from generation to generation is very strong.

"Why does a savage group perpetuate savagery, and a civilized group civilization? Doubtless the first answer to occur to mind is because savages are savages; beings of low-grade intelligence and perhaps defective moral sense. But careful study has made it doubtful whether their native capacities are appreciably inferior to those of civilized man. It has made it certain that native differences are not sufficient to account for differences in culture. In a sense the mind of savage peoples is an effect, rather than a cause, of their backward institutions. Their social activities are such as to restrict their objects of attention and interest, and hence to limit the stimuli to mental development. . . . We start not so much with superior capacities as with superior stimuli for evocation and direction of our capacities. The savage deals largely with crude stimuli; we have *weighted* stimuli." [1]

In a state of savagery or in a backward, static community, the individual is indeed "socialized" in the sense that he is trained to share in the spiritual goods

[1] Dewey, J. — *Democracy and Education*, p. 44.

of the community, however meager these may be, but he is at the same time fenced in from the realm of values or appreciations that might be his, if the community were so organized as to provide more incentives for varied development and if it encouraged and cultivated connections with other communities. Within the community there may be an intensive cultivation of desirable mental and moral qualities, but in so far as the attitude towards other groups or societies is negative, there is an absence of democracy. Different societies or groups may be thus exclusive when they live side by side, or even when the members occupy the same general territory. An extreme instance of this is furnished by the class of professional criminals, who maintain a form of social life in which the good and the bad are strangely blended. "The professional criminal is peculiar in the sense that he lives a very intense emotional life. He is isolated in the community. He is in it, but not of it. His social life — for all men are social — is narrow, it is extremely tense. He lives the life of warfare and has the psychology of the warrior. . . . Loyalty, fearlessness, generosity, willingness to sacrifice one's self, perseverance in the face of persecution, hatred of the common enemy — these are the elements that maintain the morale, but all of them are pointed against the community as a whole." [1]

While the relation of the criminal class to the rest

[1] Tannenbaum, F. — "Prison Democracy"; *Atlantic Monthly*, October, 1920.

of society is happily an extreme case, it nevertheless furnishes a certain parallel to the caste or class system which prevailed so widely in the past and which established more or less rigid barriers between different strata of society. An organization of this sort tends, from the nature of the case, to emphasize both solidarity within a social rank and the difference between rank and rank. Those who occupy a different status are, *ipso facto*, creatures of a different clay; they are either superhuman or subhuman, as the case may be, but in any event they are actuated by motives and considerations which those outside of that class do not seriously attempt to understand and share. The upper classes are credited with a refinement and nobility which it is the privilege of others to admire, but which it would be sheer affectation to imitate or pretend to possess; and, on the other hand, the "lower classes," with their coarse standards, need not be treated with the same consideration by the elect. The brutalities that grew up under this system are less an exhibition of deliberate cruelty than of the failure to realize that "a man's a man for a' that." If we once place certain of our fellowmen on a spiritual plane that is remote from our own, the incentives and inhibitions that spring from appreciative understanding no longer operate, and persons otherwise endowed with generous and sympathetic impulses become capable of the most amazing cruelty. It is against just this failure to "visualize" our neighbor's situation, to "put one's self in his place," that Shylock

utters his indignant protest. "Hath not a Jew eyes? Hath not a Jew hands, organs, dimensions, senses, affections, passions? Fed with the same food, hurt with the same weapons, subject to the same diseases, healed by the same means, warmed and cooled by the same winter and summer as a Christian is?"

It is true that this system of social organization is no longer held so widely or so rigidly as in former times. To an American, in particular, the suggestion that he should yield precedence to "his betters" is apt to have an unpleasant connotation. The fundamental article of our political creed is faith in the common man. Our political system is based on the recognition of all men as "free and equal"; yet it has, in fact, developed in the direction of an individualism which has, in some respects, borne much the same kind of fruit as the caste system. The growth of industry and commerce has tended towards the unification of certain groups on the basis of common interests, but at the same time the different groups have grown apart, so that the attitude has frequently developed into cynical disregard and even hostility. This state of things has resulted in exploitation, grafting, and profiteering; it has bequeathed to us an ominous problem of capital and labor; and it has even developed a sort of creed, which justifies the practice of "charging all that the traffic will bear," of "getting while the getting is good," and in general of conducting oneself in accordance with the maxim that "Business is business." In all this there is

a conspicuous absence of the spirit of democracy, and also a new reminder of the obligation that rests upon education.

As the foregoing discussion has intimated, the notion of democracy implies a certain relation among the members of a given group and also a certain relation between the group and other groups. This is the line of approach that is suggested by Dewey, who gives the following statement of the meaning of democracy: "In any given social group whatever, even in a gang of thieves, we find some interests held in common, and we find a certain amount of interaction and coöperative intercourse with other groups. From these two traits we derive our standard. How numerous and varied are the interests which are consciously shared? How full and free is the interplay with other forms of association?" In the answer to these questions we find the "measure for the worth of any given mode of social life."[1]

In proportion as interests are common, they tend to exercise control over the behavior of the group; and in proportion as interaction among different groups is free and unimpeded, the different groups develop flexibility for continuous readjustment in the direction of conserving and promoting relations of coöperation or free give-and-take. What is significant in a social organization is, first of all, its spirit, the direction in which it is consciously moving. There is no doubt that democracy, as above defined, has grown considerably

[1] Dewey, J. — *Democracy and Education*, p. 96.

in the course of time. Much of this growth, however, has come about without reference to democracy as a desirable ideal; it has been a sort of by-product of the struggle for specific rights and interests. The attainment of a broadly social point of view is not a spontaneous and natural result, but is, in large measure, an outcome that has behind it the sweat and agony of conflict, resulting in a series of compromises, which had the effect of paving the way for the fostering of a body of common interests and thus advancing the cause of democracy. Governments have learned to take a more active interest in the prosperity and contentment of the masses; the upper classes have cultivated a more democratic spirit of *noblesse oblige;* employers have developed a keener sense of responsibility for the welfare of their employees; and public service corporations are more disposed to regard themselves as servants of the public. (In general the development has been in the direction of giving to all the members of the community, singly and collectively, a higher sense of their dignity as human beings and of their duties and obligations as component parts of the social order.)

In the past, democracy connoted chiefly political democracy, because it was so conspicuously the political power of the despot that limited opportunity in so many directions and constituted itself the chief bulwark of special privilege. In more recent times, however, it has become increasingly plain that equality before the

law, equalization of taxation, protection of life and property, and similar matters constitute only a part of what is meant by democracy. If there is to be genuine incentive for initiative and for the development of talent, if there is to be a reasonable equality of opportunity, the door must be opened still further; our political democracy must become still more a social democracy. There must be protection, not only of life and property, but protection against exploitation; there must be a reasonable distribution of the world's goods and the world's drudgery, and a reasonable chance to start in life without the handicaps that spring from imperfect educational facilities and from surroundings that impair physical and spiritual health. The content of the ideal grows as we proceed; and with each advance the discrepancy between the actual and the ideal becomes all the more evident. Government "of the people, by the people, for the people," means much more than it did in the days of Lincoln; but this growth does not mean that we have already attained, or that we were already perfect, but at most that we press towards the mark for the prize of our high calling, in order that perchance we may sometime become a truly democratic people.

During the past few years much emphasis has been given to the need of "Americanizing" the large foreign element within our borders. That such a need exists there can be no question; nor, for that matter, is this need confined to the foreign born. As to the meaning

of Americanism, however, there is apparently considerable confusion. Sometimes the general idea seems to be that Americanism consists in the inability to speak any language except English and a complacent contempt for the institutions and practices of other countries. On this plane Americanism is equivalent to Jingoism. If Americanism is to mean something worthy, we must take our clue from the spirit of American history and American institutions. This nation, as Lincoln has said, was dedicated to the proposition that all men are created equal. Its fundamental political tenets are democracy and an abiding faith in the common man. The concept of democracy, therefore, offers itself as the appropriate point of departure for the interpretation of the meaning of Americanism.

If we take this concept as our guiding principle, it is clear that Americanism calls for an understanding of our community life. As this life goes on about us, however, it is a mixture of good and bad. It contains much that inspires every decent citizen with feelings of humiliation and shame. Unless the process of initiating the individual into this community life brings with it some ability in discriminating between what is good and what is bad, the net gain is doubtful. That is, there must be training in the ideals by which this community life may be understood and evaluated. Certain traits or features of this community life must be pointed out and explained in their bearing on a larger, richer, common life. These outstanding features are to be found in the

lives of its great men, in its literature and art, in its great public movements, and the countless ways in which what we sometimes call the spirit of the nation strives to become articulate. These concrete embodiments of achievements and aspirations give the learner a vision of a larger life that may be his, a life that contains beauty and a wider fellowship. When ideals take on tangible form they appear before us, not as the creatures of our own minds, but as a revelation of the life that is all about us. They lift us to a higher plane; they engage our admiration, our sympathy, our affection. The life of Lincoln can tell the foreigner more that he needs to know about the America to which he is asked to transfer his allegiance, than all our vaunting complacency or our courses in the duties of citizenship. When America is seen by him as the opportunity and the responsibility of a common life, it becomes *his* America, and the transformation is under way.

If Americanization is to be really worth while, the stranger within our gates must learn to see the ideal meaning behind all the turmoil and uproar of our national life. It is the function of education, first of all, to transmit and clarify this meaning. In a sense all this is perhaps an idealization of America, but it is not an idealization which slurs over or huddles out of sight whatever does not happen to fit into the picture. It is an idealization which sees the profounder meaning of both past and present in its bearing upon the liberation and enrichment of human life, which reveres the

aspirations and struggles of men whose faces were set in the direction of democracy, even though the distant scene was but dimly apprehended and not clearly envisaged by them. It is an idealization which transfigures the present by the revelation of its possibilities for ministering to the soul of man. At the same time it sets in a clearer light the distinctive development that has been undergone by democracy on this continent. The temper of our national mind was fashioned by the traditions of Puritanism and of the frontier, by the struggle for independence and the Civil War, by the mingling of nationalities and the possession of resources that have long made America synonymous with opportunity. Out of these conditions there was developed whatever is distinctive in our American civilization, such as our emphasis upon initiative, independence, and efficiency, our peculiar form of humor, our reverence for women, and our system of public education. All this provides a spiritual background, a fund of ideals and appreciations, which constitutes the common heritage of all Americans.

Unless the foreigner in our midst can sense the fact, in some way or other, that America means the spirit of democracy struggling for a more complete and adequate expression, he is scarcely to be blamed if he rates it as inferior to the civilization of his native land, which he has learned to appreciate and love. He feels, and sometimes justly, that he has a truer sense of the values of life than his native-born neighbors, whose patriotism

may be nothing more than a blind group spirit, unenlightened by worthy ideals. If Americanism means a love for our traditions and ideals, it is not incompatible with an appreciation of what is admirable in the civilization of other countries. On the contrary, such an appreciation makes a man all the better as a citizen. It is a real tragedy in the lives of many immigrants that they never learn the meaning of Americanism; and, what is worse, their children may fail to learn this meaning and at the same time have nothing but contempt for the civilization in which their parents were reared. The children of immigrants frequently show great eagerness to become Americanized. But what they take to be Americanism consists all too often of less desirable traits, such as swaggering independence and "smartness" in matters of business. Such "Americanization" is likely to mean, not progress, but degeneration, and it is here that education has a peculiar obligation.

A characteristic trait of the American people is its faith in education. Our public school system is the embodiment of the belief that the individual is entitled to enter upon his social heritage and that the cultivation of a body of common interests is essential to the life and security of the nation. On the whole the tendency of our educational system has been in the direction of the democratic ideal and away from the ideal of caste or class. Yet it must be admitted that the democratic ideal is not always clearly and steadily envisaged,

and that our educational achievements do not always conform to the spirit of real democracy. As a nation we have not been remarkably successful in understanding the psychology of other people, and as individuals we easily become absorbed in material pursuits, to the neglect of other values. For this result our educational system cannot wholly disclaim responsibility. If national history becomes a matter of self-glorification, or if earning power becomes our chief measure of success, the result of education becomes, to that extent, a source of division and not of coöperation and mutual understanding. Again, if education is mainly a matter of rote and drill, if it touches no vital enthusiasms, and arouses no deep-seated sympathies, there is no enrichment of life, except incidentally, and no development of that humane, tolerant, broadly sympathetic temper of mind which we call the democratic attitude. The results achieved by our educational system have been, to a considerable extent, random and incidental, and fall short of what we might reasonably expect if our educational activities were pervaded and directed by a conscious ideal.

It is worth while to remind ourselves that there is no inherent magic in education by virtue of which it automatically promotes the ends of democracy. Education is a tool that can be made, and has been made, to serve many masters. It can deepen lines of cleavage and can consolidate one class as against other classes or one interest as against other interests. Education was

never more widespread or more effectively conducted than in recent times, yet it did not prevent the World War; it made this war more terrible than any that preceded it. There is no good reason to think that more education will, in itself, safeguard democracy or safeguard us from other catastrophic wars. To bring about this result we must have a different quality of education, which means education conducted in a different spirit and with different standards of value.

It appears, then, that society and education stand in a relation of reciprocal cause and effect. The character of a given society determines the character of its educational system, and the character of this system, in turn, determines the character of the society. At first sight this looks like a hopeless circle. If a society were not subject to changes arising from other than educational sources, this would presumably be the case. But in this world of change new conditions are constantly arising, which call for corresponding changes on the side of education. The development of commerce and industry, for example, brought with it a new social and political consciousness on the part of the various groups or classes. With such changes there comes a demand for vocational training, and also a demand for a type of training that has a more direct bearing on social and economic conditions than the older forms of education, which were the expression of the needs and the organization of an earlier social order. There is always some change taking place, so that the social order never be-

comes entirely petrified, but always retains a certain degree of flexibility. Education, consequently, tends to be somewhat broader than it would ordinarily be if classes or occupations were fixed and unchanging. And this is precisely where education finds its unique obligation and opportunity. Its proper function is not merely to preserve the achievements of the past, but to prepare the way for further changes. In other words, education must cultivate the knowledge and the temper of mind by means of which progress can be made to depend less upon conflict and haphazard adjustment and more upon intelligent coöperation on the basis of mutual understanding or sympathetic insight. This does not mean that the schools are to be used as a means of propaganda, but as a means of cultivating an interest in the things that pertain to our common life and an appreciation of the fact that we are "members one of another." If we make the social criterion our measure of educational values, we shall be employing the most effective method for making education an agency both for preserving the achievements of the past and for promoting social progress and reform.

What counts, in short, is not only the materials that are taught, but the spirit in which they are taught, the spirit that is made to pervade our educational system. A system is not democratic simply because it is made available to everybody or because it is administered without distinction of persons. In a Spartan scheme of education all are included and all are treated equally,

but it is not democratic because the individual is subordinated, is made a means to an end; and that end, the State. To be truly democratic, education must treat the individual himself as the end and set itself the task of preparing him for that intellectual and emotional sharing in the life and affairs of men which embodies the spirit of the Golden Rule. In proportion as common interests are permitted to outweigh special interests, the individual is becoming humanized and the successive adjustments of life will be made in the direction of democracy and in accordance with the needs of an expanding life.

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CHAPTER IV

THE DEVELOPMENT OF IDEALS

Up tc the present point our chief concern has been with the proposition that the value of education is to be measured by the ideals which it cultivates. Ideals determine the quality of the individual life, and they are the forces that, for good or for evil, move the world. The importance of ideals warrants a more detailed discussion of their nature and development in the experience of the individual.

The most promising approach to this subject is to trace the development of ideals out of antecedent experience. As was noted earlier, the child comes into the world with a set of preformed tendencies or impulses. To some extent these tendencies are the common heritage of childhood. Winking, crying, walking, smiling, clutching, and the like, are clearly inborn tendencies. Practically all children delight in such activities as wading through water or mud, rolling a ball or hoop, building with blocks, walking on the coping of a low wall, and playing in the sand. There are, however, certain observable differences in children, which are likewise due to native endowment. Some children have a passion for teasing the cat, for working with tools, or for taking to pieces every bit of

mechanism that they can lay their hands on; while others show the same predilection for playing with dolls or toy soldiers, for music, or for drawing and painting. The original tendencies vary with different individuals, and they also vary with the same individual, with growth and opportunity. As the child grows into the adult, new interests appear, such as debating, writing poetry, earning money, or engaging in politics.[1] These interests are built on native endowments. The child is father of the man.

So far, however, we have not come upon that distinctive form of experience which we call ideals. What has just been said of the child might also be said, with certain reservations, of the lower animals. Dogs too, for example, exhibit certain inborn traits or tendencies, such as barking, burying bones, and chasing cats. Moreover, dogs may display marked individuality. A dog may show a strong liking for hunting and an equally strong aversion to strangers; he may be friendly or surly, timid or venturesome. So far, then, there seems to be no outstanding difference. Such a difference appears, however, when we note the fact that human beings can reflect upon their behavior and desires, can analyze and abstract. A dog may chase every cat that comes within his field of vision, but he does not seem to spend any time in thinking it over; he does not abstract the common quality from his various experiences and set up "cat-chasing" as his

[1] Cf. Riley's poem, "A Life Lesson."

ideal. Yet this is precisely the sort of thing that is done by human beings. We form concepts and then we use these concepts as instruments with which to analyze situations so as to discover their possibilities, and we convert concepts into ideals for the guidance of conduct.

These ideals represent values or interests which we seek to realize or to maintain and with which we identify ourselves. The development of ideals is, in fact, the same thing as the development of the self. The content of the self is furnished by the ideals or interests that we cherish. This is easily verified by observing the way in which we ordinarily refer to the self. Very often, it is true, the self is identified with the body, but this is by no means always the case. If a man says, "He struck me," the "me" in question is clearly the body. But if he says, "He ruined me" (financially), the "me" is identified with certain economic interests; if he says, "He attacked me" (in the newspapers), the "me" is presumably his reputation; if he says, "He supported me" (in a political campaign) the "me" is the political aim to which he aspires.

It is evident from this account that the self is not one but many. A man may be one kind of man at home, another in his office, a third at his club. In each case he lives up to different standards, maintains a different set of interests. The number of selves which it is possible to recognize in connection with any given individual is indefinitely large. Ordinarily some of

these interests dominate others, in the sense that when a conflict occurs they have the right of way. The lesser is then sacrificed to the greater. But the dominant interest is not the same in all individuals. With some it is, perhaps, "wine, women, and song"; in the case of John Knox it was indicated by his prayer, "Lord, give me Scotland or I die"; others again may agree with the poet in the sentiment:

> It fortifies my soul to know
> That though I perish, truth is so.

Every individual, then, normally possesses a variety of selves. As James remarks, the average man would fain be "handsome and fat and well-dressed and a great athlete, and make a million a year, be a wit, a *bon-vivant*, and a lady-killer, as well as a philosopher; a philanthropist, statesman, warrior, and African explorer, as well as a 'tone-poet' and a saint." [1] In a sense he is more of a tenement house of desires than a unitary personality. Yet there is an underlying unity in that these different interests or selves constantly require adjustment and harmonization. A man's passion for first editions, or for automobiles, may be limited by the condition of his purse or by the opinion of his family or community. He then has to decide how far he is willing to go. As long as the decision is not made, he does not know clearly what he wants; which is just another way of saying that his selfhood is in

[1] James, W. — *Principles of Psychology*, Vol. I, p. 309.

process of growth and change. In other words, the self is not a fixed quantity or static thing; it is not an inherited possession, but an achievement. It expands in one direction and contracts in another; it is in the making all the while.

Since life is a constant process of adjusting conflicting interests, it is to be expected that no one can live a perfectly consistent life, no matter by what standard he may be judged. The most devout saint has his seasons of backsliding, and the vilest sinner will, on occasion, rise to unexpected heights of virtue. Circumstances may conspire to bring out what is most degrading or most ennobling in man. These crises in the moral life indicate that the organization of conduct is never a completed task, but must constantly be undertaken anew. New conditions give fresh strength to certain impulses as against those which ordinarily prevail in such matters. As a rule, we are perhaps honest, cautious, conservative, tolerant, or generous, but the unusual situation arises and our more or less habitual reactions are put to the test. The individual becomes a house divided against itself. In the literature of morality and religion the conflict is sometimes represented as a struggle between a higher and a lower self, but at other times the "real" self is identified with one of the conflicting tendencies, while the other is treated as an alien, external force. The "real" or "true" self is perhaps found in the better or higher impulse, while the evil suggestion is ascribed to the

promptings of the devil or to the pernicious influence of the social environment.[1] Or it may be that the evil thoughts and desires are accepted as peculiarly our own, whereas the better impulses are attributed to a benign power, because they are supposed to be naturally foreign to the corrupt and sinful soul of man. This view has found a classic expression in the doctrine of total depravity. As a matter of fact, of course, all these conflicting tendencies owe their being equally to the constitution of the individual. The struggles and conflicts are inevitable incidents in the history of a changing self; they are the growing-pains which mark the progress from one moral level to another. Children and the lower animals live their lives more or less in subjection to whim and caprice, with reflective judgment either entirely absent or at all events reduced to a minimum; consequently the concept of selfhood seems somewhat inappropriate as applied to them. Whenever interests are not abstracted and set up as ideals, we hesitate to speak of a self at all.

It was said a moment ago that the average person has an indefinite number of ideals by which his conduct is determined. We normally desire friendship, wealth, reputation, influence, social recognition, and hosts of other things. Some of our ideals are more general in character than others, so that when a conflict of interests arises, appeal may be made to them.

[1] This latter conception is associated particularly with the name of Rousseau. See also Shelley's poem, "Queen Mab."

A man is perhaps interested in civic improvement, but his business is very absorbing. In such a case the extra demand upon his time may be reënforced by reminders of what is required by the ideal of good citizenship or loyalty to his community. He may find it disadvantageous to tell the truth or to observe the law, but may be impelled thereunto by the ideal of truthfulness or obedience to authority. Ideals, such as truthfulness, obedience, loyalty, patriotism, and courtesy, are indispensable agencies for discovering the significance of new situations. They direct our attention and tell us what to look for, so that conduct may be guided, not by habit or by impulse, but by the perception of meanings.

Guidance by ideals, however, may take place in two very different ways. When a new situation arises, we may discover that a certain ideal is involved, and thereupon proceed to act, with no reference to any other values that may likewise be involved in it. The boy who stood on the burning deck refused to consider anything but the ideal of obedience, and so he just stood there, 'whence all *with sense* had fled.' The conscientious objector may rest his whole case on the command, "Thou shalt not kill," with no regard for any other aspects of the case. Or a citizen may respond unhesitatingly to the commands of a military adventurer, like Frederick the Great or Napoleon, as a matter of duty and patriotism, it being taken for granted that "to doubt would be disloyalty, to question would be

sin." When ideals are used in this way, they cease to be a means of acting intelligently, and become a sort of fetish, which may be used to justify almost any kind of irrational conduct.

The point at issue, it should be noted, is not whether we should be loyal to our ideals, but whether we should be loyal to one ideal at the expense of the rest. It would generally be conceded, for example, that there may be exceptional occasions when it would not be wrong to make a statement that did not conform to the facts, or to violate the law by taking what belongs to someone else. Moreover, such conduct may be dictated, not by disregard for moral values, but by concern for them. If conduct is to be rational or intelligent, it is necessary to use our ideals so as to discover the values that are at stake in a given situation, so that we may seek to conserve those values to the best of our ability. Blind obedience to an ideal is fundamentally unintelligent, since it means a disregard of other possible values. We may be so subservient to the ideal of charity that we consider it our duty to feed every tramp that comes along, without regard to the effect of this practice on society in general. We may be so blindly submissive to the claims of "liberty" that an attempt to limit working hours will seem to be an infringement on the right of the workman to work himself to death in order to hold his job; or so regardful of property rights as to be insensitive to the injustices of economic distribution. In some

cases this unquestioning loyalty to an ideal springs from an inability to understand the whole situation. In other cases it may be due to indifference, as in the case of people who pride themselves on telling the truth, or being plain-spoken, when, in fact, they are simply callous and brutal. Or again, this one-sided devotion to an ideal may be an expression of self-interest. It is usually easy for a selfish person to persuade himself that an unusual expenditure of money or energy for some worthy philanthropic purpose would be disloyalty to his family or to his business. Ideals are no substitute for thinking; if used properly, they are means for thinking effectively when the occasion requires it. When ideals are treated as ready-made and final, it means that development has stopped; if treated as agencies for analyzing new situations, they lead to new insights by which these same ideals become enlarged and transformed.

How this comes about appears when we consider the process of making a choice. When a conflict of interests arises, so that reflection becomes necessary, the person concerned is unable to decide offhand what it is that he really wants or what would be really right and good. Hence it is necessary to canvass the situation. He may have political preferment offered to him, if he will make some concessions to the platform of the party; or a business opportunity may come to him through connection with a firm or corporation of whose methods he does not entirely approve. Which

course shall he follow? He does not wish to do wrong, but neither does he wish to be foolishly *doctrinaire* and unpractical. Would it really mean a sacrifice of principle? Perhaps an examination of all the circumstances connected with the case will show that no sacrifice of principle is involved, in somewhat the same way that a person who considers it wrong to tell a lie may find that misrepresentation to a sick or insane person is not a sacrifice of principle. In this case it is evident that reflection leads to a new insight, to the creation of a new ideal of integrity or of truthfulness. Or reflection may show that the proposed conduct is morally wrong, but the individual concerned may decide that it does not pay to abide by moral standards. In this case there emerges a new and evil conception of practicality or worldly wisdom. In any event, the storm and stress gives birth to a new ideal of conduct, and it is in this way that the individual advances from one moral level to another.

Situations of the kind just mentioned are called moral situations because they involve a choice as to what kind of self the individual shall seek to realize. There are many choices that have no reference to a new selfhood or a new scale of values, but simply to the selection of the means to an end. When a business man tries to decide which of two investments will be the more profitable, or when an architect seeks to determine which type of construction will be most suitable for a building, with regard to its appear-

ance or to the purpose for which the building is intended, the choice is not a matter of creating a new moral standard. The person concerned is not trying to decide which sort of self he shall cultivate. The end is already determined, and the trouble lies in the selection of the means to the end. A wrong choice, accordingly, may be evidence of stupidity or of ignorance, but not of a moral defect. Such situations, it is true, may easily take on a moral quality. The profits of an investment may involve lying advertising or the exploitation of helpless employees; the proposed building may be a fire trap or may commit a trusting employer to an unwarranted expenditure of money. When such considerations enter in, there is a conflict of ends. Do we really desire the proposed end, to be that kind of person? Moral conduct, accordingly, has been defined as "activity called forth and directed by ideas of value or worth, where the values concerned are so mutually incompatible as to require consideration and selection before an overt action is entered upon." [1]

It is sometimes said that all sin or immorality is selfishness. This statement is essentially correct, but it obviously requires interpretation so as to bring it into line with the foregoing doctrine. There is no single unchanging self to be loved, but only a variety of changing selves. In the light of this fact, it is not altogether obvious what is meant by selfishness or self-love. A selfish person loves comfort, possessions, pleas-

[1] Dewey, J. and Tufts, J. H. — *Ethics*, p. 209.

ures, power, fame, and the like, since these constitute the sort of thing that makes up selfhood. But these are loved by the unselfish person too. They constitute the sort of interest that the normal person cherishes and seeks to maintain. The difference between the selfish and the unselfish person is not to be looked for primarily in a difference between the interests which they recognize and in some sense cherish, but, rather in the way that these interests are maintained. Or, more specifically, the difference lies in the way that adjustments are made when conflicts arise. As circumstances change, our more habitual reactions must likewise be changed so as to meet the new conditions. Ordinarily, for example, the average citizen avoids danger, which shows a commendable interest in his own welfare and that of his family. Under certain circumstances, however, as in war time or when others are in peril, the avoidance of danger may become the reverse of laudable. The avoidance of danger may then become selfish and cowardly, not because personal welfare has no value, but because it is considered and acted upon to the exclusion of other values. The individual refuses to adjust his habitual behavior or concern to the requirements of the new situation, and it is precisely this refusal which constitutes selfishness. He, too, normally desires the safety of his country or community; but this desire is not strong enough to affect his conduct. Similarly, the desire for comfort or for food is in itself altogether natural and un-

objectionable; but if other interests are refused proper consideration, the indulgence of these desires becomes selfishness. The essence of selfishness, in short, is the failure to get out of the rut of previous adaptation, the refusal to give a hearing to all the interests that are entitled to consideration. The fond parent who spares the rod, or the philanthropist who refuses to consider the evil effects of indiscriminate charity, is as much guilty of selfish indulgence as the man who is too lazy to provide properly for his family. Considered in the abstract, no impulse or desire is either selfish or unselfish; it becomes so only in relation to other desires or values. In other words, selfhood begins when moral choices become necessary. The self is not a thing apart, but is progressively realized as life opens up new vistas and creates larger aims. The self is always in process of becoming, and its range and quality alike are to be tested by the ends or values which are cultivated so as to be made operative for the guidance of conduct.

So far as education is concerned, it is clear that the cultivation of ideals is an inevitable concomitant of proper instruction. The development of appreciations is at the same time a development of ideals. In liberating capacity, education simultaneously provides the incentive for seeing visions and dreaming dreams. To understand the meaning of things is to have some insight into the use that may be made of them as the instrumentalities for the realization of human purposes. Unless instruction in any subject touches the

sources of appreciation and captures the imagination, its value is doubtful; if it succeeds in doing this, the effect upon the formation of ideals is direct and inevitable. But if this is to be done effectively, there must be some realization, on the part of the teacher, that the purpose of teaching is not simply to impart a body of organized knowledge, or to prepare for a specific occupation, but to give an insight into what the subject matter has meant in racial experience, so that it may make its appeal to the imagination and become the source of ideals that pulsate with the quickened life of the individual.

Ideals, then, spring up spontaneously and inevitably with the appreciation of meanings. An appreciation of language sets up a new standard for everyday conversation; an appreciation of history gives a new conception of citizenship; an appreciation of any subject has its influence in determining our notions as to what things are worth while. But this is not to say that ideals may safely be left to take care of themselves. It may easily happen that appreciations are fostered without provision for their modification or guidance. History, for example, may be studied in an intensely partisan spirit; i.e., from the standpoint of a particular religious sect, or of a social class, or of a bigoted nationalism. Similarly, literature and mathematics may cultivate appreciations that have only an incidental relation to the rest of life, and indulgence in them may become akin to vice. Or virtues like

obedience, truthfulness, and loyalty may be fostered in isolation, so as to encourage blind subservience.

If we are really concerned to secure a maximum of growth, it is necessary to foster the attitude of acting with reference to all the interests that are involved in the given situation. To decide in advance that certain things are inherently good or bad is to discourage thinking and to hamper development. If we hold that all impulses are intrinsically good, we prepare for the type of education which glorifies every passing whim and makes it a law unto itself. Or if we go to the other extreme and seek for moral good in the suppression of impulse, we become Puritanic in an evil sense, and development becomes warped. The only safe position is the view that impulse has no inherent moral quality and that sound moral education consists in developing the attitude or disposition to act with reference to all the aspects of the situation, and neither from momentary caprice nor from loyalty to an abstract standard.

Every society tends to be ultra-conservative in some respect or other, in the sense that it encourages the passive acceptance of certain standards and discourages inquiry. In the past, physical science, when carried beyond a certain point, was regarded with disfavor, but here the battle has been won. In the field of economics, or politics, or religion, this can hardly be said to be the case. Tennyson's dictum

> There lives more faith in honest doubt,
> Believe me, than in half the creeds.

can scarcely be taken as the measure of our actual attitude. Lack of conformity in religion we tend to condemn out of hand as materialism or atheism; in politics as socialism or treason; in economics as anarchy or bolshevism. An attitude of this kind may be intensified by education, so as to strengthen the tendency to meet the world with ready-made ideals and fixed standards. In so far as this takes place, education becomes an agency for perpetuating the established order without change, and becomes an enemy of progress and reform. Education in this case does indeed initiate the individual into the life of his community, but it does so only to a limited extent, since it raises obstacles to the appreciation of the full meaning of experience.

The import of the foregoing is not that it is wrong for the teacher to take sides on any subject that is matter of controversy. If he is reasonably intelligent with reference to the matter in hand, he is bound to have opinions of his own. This is both inevitable and proper. What is meant is that he must be true to the meaning or spirit of education, which requires us to treat every stage as a stepping-stone to further development, further growth. It is not for the teacher to determine in advance what the final result is to be. What is required by the ideal of impartiality is not to have no opinion of one's own, but to give a fair hearing to all the interests concerned in a given situation, to gain an insight into the meaning of whatever

is at issue, through sympathetic understanding. It is the spirit that maketh alive. If education means the cultivation of appreciations, and the widening of experience through learning the meaning of our physical and social environment, the attitude that is maintained becomes all-important. If the attitude is in accord with the social criterion, education will not only conserve the past, but will provide for the enrichment of our heritage through further development and modification. This criterion likewise provides a standard for moral judgments. Any judgment that has honestly tried to be fair to all the interests concerned is morally good, however much it may err in its facts or its conclusions. It is morally good because it has avoided the sin of selfishness, which consists in the unwillingness to readjust so as to preserve or protect as much as possible all the interests involved. The standard, then, gives direction to the development of ideals, and in so doing it makes education serviceable to the interests of democracy.

The proper test of ideals, then, is whether they are conceived and maintained in a social spirit. Virtues like truthfulness, obedience, and loyalty, which spring from a sense of coöperation, of personal responsibility for a common enterprise or a common good, are very different from virtues that mean merely a passive, unquestioning conformity to a rule. The virtues, therefore, are cultivated in the right way if the activities of the school become a joint undertaking, to which

each member makes some contribution and for which he assumes some personal responsibility. The humane spirit of sound education is imparted most readily by a sort of contagion. Pupils are quick to sense the attitude of the teacher, and the impression thus made is reflected in the quality of the work that is done; and it is precisely this generous, human attitude, this spirit of fairness and of interest in all human values, that must be fostered in order to insure the continued and healthy development of ideals.

"We often hear it said that the hope of the future lies in education. It is not very long since many people built high hopes upon the magic of 'evolution.' Our faith in evolution has been sobered by events; we now realize, more or less clearly, that salvation will not come automatically to a long-suffering humanity. But this is as true of education as it is of evolution. Education is a tool that can be made to serve many masters, and the notion that it will inevitably and mechanically create the spirit upon which the future depends is a dangerous delusion. Instead of recognizing the fact that the development of aims calls for educational guidance, we treat the aims as fixed and the subject matter as though it inherently or automatically realized the aim, without realizing that this practice is just the modern equivalent of the old-time doctrine of faculty psychology. The chief difference between now and then is that the magic powers which were formerly supposed to reside in the soul have been

transferred to the subject matter. Naturally the expected results do not materialize, but instead of remedying the difficulty by a different organization of subject matter and different methods of presentation, we tinker up the old machinery by providing new courses to cover the deficiencies. Should the High School teach thrift? Should it teach the nobility of common labor? Should it teach respect for law and for the enforcement of law? Should it teach respect for parents? Should it teach patriotism and the rights of other peoples? In former years the shortcomings of purely disciplinary or cultural training were met by the introduction of courses aimed at immediately practical or narrowly utilitarian results. We seem to have learned little from that experience. Whenever the desired educational results are not forthcoming, an agitation springs up for a new course to furnish what is needed. 'In the multitude of educations, education is forgotten.'" [1]

It has been said that the function of education is both to transmit the achievements of the past and to provide for progress and reform. We are sometimes under the delusion that growth in production and in complexity is identical with progress. Civilization then becomes synonymous with machinery. But it should be obvious that machines are but tools, and

[1] The foregoing paragraph is quoted from an article by the writer, entitled "Educational Aims and Scientific Method" in *School and Society*, Vol. XI, p. 42.

that the worth of a civilization depends rather on the use that we make of these tools. In so far as they secure greater opportunity and make the fruits of the past more accessible to every one, machinery becomes indeed a symbol of civilization. To a considerable extent our inventions and labor-saving devices have undoubtedly led to such results. The laborer of to-day has many advantages that were withheld from the lord of former centuries. But the changes have brought new problems and new dangers. Commercial rivalries and class struggles contain a threat of disaster, unless we cultivate the spirit through which conflicts may be adjusted amicably as they arise. Overemphasis of production or efficiency is not the same as conserving the past; that way madness lies. Nor, on the other hand, is it the function of education to provide for the future by attempting to determine beforehand what the organization of future society shall be. Whether the next generation is to perpetuate the present political, economic, or social order is not for us to decide. Education is not propaganda of this kind. But the spirit in which the questions of the future will be adjudicated is determined by what we do now. In large measure we can decide whether or not the ideals of the next generation will have a genuinely social quality; whether business, politics, craftsmanship, are to be regarded primarily as means to personal advancement or as different forms of a common life. To achieve this transformation in the ideals of the business man,

the politician, the craftsman, is the legitimate and necessary function of education. If every member of the community can be made to feel his responsibility for the common welfare, adjustments will be made intelligently and our ideals will prove themselves equal to the emergencies that the future will bring forth.

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CHAPTER V

INTEREST, DUTY, AND EFFORT

In educational literature the terms "interest" and "duty" occupy a prominent place. They have been used as slogans, as battle cries. The more extreme forms of educational theory have held, on the one hand, that all educational activity should be motivated by interest, that the child should be required to do nothing which he did not feel inclined to do; on the other hand, that training in abstract duty, or duty for duty's sake, is one of the chief ends of education. The first position takes its appeal by preference to biology and psychology, the second to the moral law. If we judge the two positions by the contentions of their opponents, the first makes the child a creature of whim and caprice, while the second makes it a blind tool or machine, of which the training furnished by the German educational system has of late years been pointed out as a horrible example.

As thus stated, the two positions appear to be hopelessly divergent and irreconcilable. Motivation by interest seems to subordinate the individual to the situation. As long as the situation happens to woo us, to attract and charm, we are able to act, but if it happens not to do so, our motive power is gone and

we are helpless. Shall we accept this dependence on the environment as the law of life or as evidence of weak-mindedness? According to James, this dependence, which "makes the child seem to belong less to himself than to every object which happens to catch his notice, is the first thing which the teacher must overcome. It is never overcome in some people, whose work, to the end of life, gets done in the interstices of their mind-wandering." [1] It is the duty of education to subordinate the situation to the individual, to enable him to act with reference to remote ends, whether the task in hand has any interest or not. Not only that, but it may be argued that this independence of activity can be secured only by disregarding interest, at least at certain points; i.e., by cultivating the attitude of duty for the sake of duty.

This alternative, however, raises grave misgivings. In the first place, it seems to rest on a questionable psychology. How can "duty" rule over interest? The things that interest us are things to which the impulses of our being respond, and how are these impulses to be controlled or suppressed, except by some opposing impulse? Shall we say, then, that duty is just another of our interests? To take this ground is virtually a surrender to the enemy. Abstract duty is just a word; it must have some specific content for the guidance of conduct before it can evoke interest. Duty must be made to mean welfare of humanity, perfection, pleasure,

[1] James, W. — *Principles of Psychology*, Vol. I, p. 417.

culture, or something of the sort; there is no magic in a mere word. But if we substitute some such content for the word "duty," it is not clear at once what has been gained. Men are undoubtedly interested in such things as those just mentioned, as they are interested in many other things, but the whole issue has now become an affair of interests, which is precisely what is maintained by the doctrine of interest. What is needed is to make some kind of interest authoritative for the guidance of conduct. If the doctrine of interest means control by whim, it stands condemned.

If we are to gain further light on the subject, it is necessary to go more into detail in the matter of interest, particularly in its relation to effort. Interest is a process that is characterized by concentration or absorption. The process may be of short duration or it may cover a considerable period of time. During the early years of life all our activities or "interests" are of a transitory nature; objects hold our attention only momentarily, and out of sight is out of mind. With the growth of experience comes a greater range of inclusiveness of purpose, but the essential character of the activity remains unchanged. Whether the purpose be narrow or wide in its scope, the given purpose embodies the whole self of the moment; the self is completely identified with the activity that is going on, and the activity is interesting because it furnishes an opportunity for the expression or development of the impulses and tendencies of the individual. The

child becomes absorbed in his building blocks because of the opportunity they offer to use his hands and to exercise his mechanical bent; the adult is interested in building a house, acquiring a fortune, achieving a social reform, or molding the policy of an empire, because this course of action embodies the purpose with which his selfhood has become identified.

In the attempt to give expression to the native tendencies which prompt activity, we soon become involved in effort. Many a course of action, like the course of true love, fails to run smoothly. Obstacles present themselves, which can be removed only at the expense of persistency, and perhaps ingenuity. The building blocks may fall down a number of times before the structure is completed, and the house that we build or the book that we write is likely to call for much labor and watchful care, before the end is attained. In order to accomplish the result we are obliged to face difficulties and contend with them, and the expenditure of energy thus required is called effort.

This, however, is but one phase of the matter. As long as we give ourselves whole-heartedly to the overcoming of obstacles, our problem is just a problem of ways and means to the end that we have in view. The end or purpose is, for the time being, in complete possession of the field and furnishes the driving power that keeps us to our task. All the habits, tendencies, impulses, of the moment are directed to one end, which claims our undivided interest and attention; and our

whole concern is with the means for the realization of this end. But there is also another kind of effort. From the standpoint of educational theory and practice, the situation is fundamentally different when effort is required, not primarily to remove obstacles, but to secure unified and efficient activity. The trouble is perhaps not so much "without" as "within," not so much with the difficulty of the task as with our distaste for it. The end that we set ourselves is desired for some reason or other, but this desire comes into conflict with some other desire or tendency. It is in situations of this sort that the sense of duty has its origin. To all appearances a new and mysterious force now enters upon the scene. Unity of action is secured by the exercise of a military dictatorship, which holds in subjection the disaffected elements in the community. Activity in the direction of the end is sustained only by a certain compulsion; and effort is exerted, not simply in order to overcome the obstacles to our purpose, but to maintain the supremacy of our purpose over the desires or tendencies that are opposed to it.

That many acts must be accomplished in some such fashion as just indicated is a sadly familiar fact. It is also true, indeed, that situations of this kind frequently remedy themselves. The task which at the outset is just a necessary evil may in the end become supremely interesting. Timely reinforcements may arrive. The lawyer or the physician may grow weary and lose his immediate interest in the case which baffles him, but the

tendency to neglect it for the sake of something else is inhibited by habit, by considerations of sympathy, or of the effect of failure on his reputation and practice. When such considerations operate, the end in view; viz., success with the case, becomes an entirely different affair. The considerations are so many appeals to various tendencies or desires, all of which find their opportunity of realization in this particular case. As a result the case gains a new hold on the attention; the flagging interest is aroused, for the end to be attained has undergone a transformation. It is now an end which arouses and unifies a number of diverse tendencies and thus supplies the conditions for concentration and interest.

Cases of this sort furnish us a clue to the meaning of duty. At the outset there is a conflict of impulses, so that action is inhibited. There is a lack of organization, which must be remedied before action can take place. The remedy is sought by widening the area of considerations, by bringing to mind various facts or circumstances that have bearing on the matter in hand. In other words, we seek to construct a new environment, to which we can react in harmonious and effective fashion. The professional or business man who seeks to renew his strength by bringing to mind what success or failure may mean to him is constructing a new situation for himself, which will call forth a more appropriate form of response. He may do this by dramatizing to himself the results of success or failure,

so as to realize more intimately the meaning of the situation in which he finds himself. By doing this he gets the "feel" of it all, which is then transformed into overt conduct. If this is done vividly, with real imaginative power, the task in hand appears in a new perspective. It is something to be done, not because duty requires it, but because he wants to do it, because the outcome means so much to him. On the other hand, this reference to the background of considerations or interests may be made without much imaginativeness or dramatic detail. This reference may serve the purpose of keeping him going, but in a very different way. He knows the meaning of his acts, after a fashion, but the "realizing sense" is not present; he is obliged to rely instead upon habit and a sense of duty, and the sustained action which is demanded is achieved by reliance upon the dull heave of effort.

What is significant here is the fact that it is possible to get the work done without this "realizing sense." The sense of duty is just the recognition of these more remote interests, without their vivid presence in the imagination. Duty thus becomes a substitute for the immediate appreciation of these more remote interests. If this immediate appreciation were present, it would bring into play the energies of our being, and the sense of duty would be swallowed up by interest. But the fact that there is no immediate appreciation need not mean that these interests are completely ignored. To count them in, to act with reference to

them, under such circumstances, is precisely what makes the difference between intelligent behavior and impulse. The family selling the cookstove for tickets to the circus, with no thought of the morrow; the savage gorging himself at the risk of future starvation; the spendthrift wasting his substance in riotous living, with no provision for a rainy day, are all instances of the disregard of more remote interests or considerations. Children and primitive peoples tend to be immersed in the present; whatever lies beyond the immediate horizon does not figure in the control of conduct. With mental development there comes an increasing regard for what is not directly present, and this recognition is what we call *the sense of duty.*

The sense of duty, then, means the pressure of our more remote interests upon the desires and impulses of the moment. The fact that a sense of duty is present at all indicates a lack of harmony or coördination. If overt action is to take place, some sort of adjustment must be achieved. Sometimes this adjustment comes about with a minimum of intelligent direction. The considerations that are suggested simply tap new reservoirs of energy and the inhibitions are swept away. How potent this inrush of new energy may be in the destruction of inhibitions which ordinarily would interfere with, and possibly prevent, action appears most impressively when the flood gates are opened wide and a strong tide of impulse rushes in. When this happens, "things ordinarily impossible grow nat-

ural because the inhibitions are annulled. Their 'no! no!' is not only not heard, it does not exist. Obstacles are then like tissue-paper hoops to the circus-rider — no impediment; the flood is higher than the dam they make. '*Lass sie betteln gehn wenn sie hungrig sind!*' cries the grenadier, frantic over his Emperor's capture, when his wife and babes are suggested; and men pent into a burning theatre have been known to cut their way through the crowd with knives." [1]

It was said a moment ago that action of this sort involves a minimum of intelligence. Opposing considerations are simply thrust aside, without being accorded a hearing. The resultant action may be commendable, but if so, this is just a happy accident. It is another case of selling the cookstove in order to go to the circus. If conduct is to be intelligent, there must be sufficient reflection to make sure that opposing considerations deserve to be overruled. If the choice is both important and beclouded, it becomes necessary to canvass the whole situation carefully. The moral quality of a man then shows itself in the care that he exercises to give proper weight to all the interests that are involved. It is easy and tempting to slur over considerations that do not happen to attract us at the time, or to substitute for the labor of thinking some dictum, such as "Business is business," or "Charity begins at home." If all interests have been considered, to the best of our ability, then that adjustment accords with

[1] James, W. — *Varieties of Religious Experience*, p. 263.

duty, because it seeks to conserve a maximum of these interests. In many situations, of course, reflection is unnecessary. We perceive at once which course of conduct is required, and when this is the case, an appeal to duty may properly serve as a substitute for a painstaking survey of the situation.

On the basis of the foregoing discussion we may now venture to attempt a reconciliation of the conflicting claims of interest and duty. Each of these two positions represents an important truth. In the last resort, conduct is just the expression of our native or acquired tendencies, capacities, or preferences, and in this sense all conduct is based on interest. Duty in the abstract is an empty word; it is the grin without the cat. But duty when properly interpreted is a thing of tremendous significance. Taken in this way, it is simply the demand that conduct must be intelligent or rational. The failure to consider the whole meaning of a situation, in so far as that meaning is accessible to us, is fundamentally unintelligent. Moreover, it is possible for persons invested with authority to encourage the trait or habit of reflection in matters pertaining to conduct. This may be done in various ways, such as persuasion, explanation, or coercion. There are cases in which coercion or punishment is by far the most effective. A man may be incorrigibly devoted to fishing and loafing, to the neglect of his proper duties, until he is haled into court for nonsupport of his family. Until that point is reached, remonstrance and

persuasion may have been wholly futile. But when he finds himself in the toils of the law, things begin to look different. When society expresses its disapproval through the stern hand of authority, he acquires a realizing sense of how his conduct looks to others and what it really means. When punishment has this effect, it becomes a great educational agency, in the schoolroom and outside. If properly applied, punishment has the same educative effect as what we sometimes call "the natural consequences of our acts." In one way or another every person requires education of this sort, since we do not spontaneously and naturally count in all relevant considerations before we act. In so far as we do not act with reference to remote considerations, we are the victims of caprice and circumstance. Independence of the passing whim is indispensable in the education of every person; which is the same as saying that every person needs to be trained in a sense of duty. This training is an essential condition for that stability of character which is necessary if a man is to be a real man and take a man's part in the affairs of life.

It should be noted that this standpoint differs materially from the doctrine of duty for its own sake. As was said before, duty is just a name for the claim of the more remote interests. Duty, then, finds its fulfilment in the adjustment of these various interests or values, and this adjustment is an act of intelligence and a sign of growth. The sense of duty collides with

distractions and with the promptings of laziness and indulgence. When a person once "gets into" his work, the inhibitions drop away and he gives himself whole-heartedly to the task before him, at least for a time. With most men a more or less deliberate holding of themselves to the work before them seems to be the rule. A great share of the world's work is undoubtedly done with low pressure, the concentration of attention, such as it is, being secured primarily, not by the spontaneous coöperation of impulses to a common end, but by a certain expenditure of effort to fight off distractions.

It has been pointed out that by effort is meant the expenditure of energy both in removing obstacles and in maintaining a dominant purpose throughout a course of action. Effort in the former sense is obviously quite compatible with the highest degree of concentration or absorption; a high degree of concentration is, indeed, very favorable to the exercise of effort in this sense. With regard to effort in the second sense, however, the case is quite otherwise. This kind of effort is demanded precisely because the concentration or interest is not sufficient to give a maximum of efficiency. The effort bears witness to the presence of inhibitory tendencies, which interfere with the "momentum" or "impact" of our action. These inhibitions act like brakes on a wheel, so that the machinery runs at low speed when a high speed would be otherwise attainable. The effort which is required to main-

tain a given purpose in a position of authority, as against conflicting tendencies, varies inversely with the degree of concentration or interest that is attained. If, as a result of the effort, we finally become absorbed in our work, this effort has served its purpose and disappears from the scene. Its work is done when it has created the most favorable conditions for the application of effort in the other sense; viz., persistent and whole-hearted endeavor in the elimination of obstacles. The interest which is ultimately aroused is due to the fact that, from a psychological standpoint, the end or aim has undergone a change or process of development. We begin to see more clearly the possibilities that are contained in our undertaking; and if the undertaking calls for thinking, interest is aroused because ideas begin to sprout and bud; the subject grows under our hands, and we are carried along by the momentum of the activities that are excited and brought into play as new vistas come into view. When this stage is reached, the joy of working begins and efficiency is at its maximum. To reach this state is the proper goal or ideal of all work that is not the barest routine; but all too often the inevitable precondition is the dead heave of effort by which the inhibitions are overcome, and concentration, interest, is put in possession of the field.

This initial effort seems to consist essentially in a deliberate shutting out of all tendencies that are incompatible with the task in hand. We virtuously put

all conflicting suggestions behind us as so many temptations, in order to give the favored activity room to blossom and expand. In its immediate intention the effort is simply a means to an end. If the effort fails, if the subject does not open out and lead on to new achievements, we soon develop a distaste for it, and subsequent efforts in the same direction become increasingly difficult. Effort of this kind has nothing to recommend it, unless it leads to results; and the failure to achieve results is pretty sure to do damage, in that it sets up a reaction against the particular task upon which the effort was fruitlessly expended. The teacher is entitled to require that certain work be done, since there is an antecedent presumption that he is the best judge as to what should be done. But this authority imposes upon him the obligation to "make good" by presenting the subject matter so that it will become vital to the learner.

When materials of study are chosen without reference to the native tendencies or activities of the child, we have a fairly complete misunderstanding of the purpose of education. If the subject matter is to serve this purpose, it must be such as to further or develop the capacities and tendencies of the pupil, which means that he must be able to "see into" things so as to appreciate their bearings and significance in various directions. When this happens, other tendencies or impulses are aroused, which reinforce what is already going on. If the subject matter develops properly,

the rest may safely be left to take care of itself. An imaginative but striking illustration of how a trivial fact may become invested with interest and meaning is furnished in the following quotation:

"In the 'Sign of the Four' Watson remarks to Holmes, 'I have heard you say that it is difficult for a man to have any object in daily use without leaving the impress of his individuality upon it in such a way that a trained observer might read it. Now, I have here a watch that has recently come into my possession. Would you have the kindness to let me have an opinion of the character of the late owner?'

"After examining the watch, Holmes concludes that it belonged to Watson's elder brother, who was a man of untidy habits, and who, although left with good prospects, 'lived for some time in poverty, with occasional short intervals of prosperity, and finally, taking to drink, he died.'

"These facts, Holmes explains to the astonished Watson, he discovers from observing seemingly trivial markings on the watch. The initials, *H. W.*, on the back of the watch, give a clue to the owner. The fact that the watchcase is cut and marked all over from the circumstance that other hard objects were kept in the watch pocket with the timepiece, shows the owner's carelessness. The value of the watch suggests that the owner must have had at one time other articles of value. Pin point scratches, giving the numbers of pawn tickets, reveal the fact that the owner

was often in financial difficulties; while the fact that he redeemed his pledges, since the watch was pawned at least four times, shows that he had occasional bursts of prosperity. Finally the thousands of scratches around the keyhole—marks made by the key slipping—indicate that the watch belonged to a drunkard, who, on winding it at night, left the trace of his unsteady hand." [1]

When a subject proves so fertile in suggestions, its power in holding the attention and stimulating thinking is assured. It has become transformed from an insignificant or "bare" fact into a fact that is intimately related to a multitude of things to which we respond easily and naturally, and we are thus furnished with an object or a direction for these responses. This is only another way of saying that our background of knowledge or "apperceptive mass" has been brought to bear upon the object so as to make it luminous with meaning. When this occurs, the most commonplace objects may take on an absorbing interest, as when, to the eye of the geologist, chance scratches on the face of a cliff become transformed into a fascinating tale of glaciers and erosions in bygone ages. To work transformations of this kind is the proper aim of education, on the intellectual side. To acquire a liberal education is, very literally, to build for one's self a new heaven and a new earth.

[1] Colvin, S. S. —*The Learning Process*, pp. 315, 316, note.

Unless new facts are so related to the background of former experience that both the fact and the background become enriched thereby, learning becomes formal and detached. There is perhaps a certain glibness or readiness in reproducing what has been passively absorbed, but this is vastly different from real insight. Ideas, like words, may be fixed by a process of memorizing, in the sense that they do not become assimilated to the experience of the learner. And the final result of this failure to reinterpret the world of the learner to himself is, naturally enough, to create a feeling of boredom and dislike; or, if interest be nevertheless maintained, the source of the interest lies in things extraneous to the subject, such as love of commendation, rivalry, fear of failure, etc., which may conceal the fact that the process of education has failed to attain its proper aim.

It is true, fortunately, that good teaching is not necessarily dependent upon a formulation, on the part of the teacher, of the results which education should seek to accomplish. Many a teacher is wiser than he knows. But without a formulation there is always the danger of misplaced emphasis and mistaken aims. To some extent, indeed, the bright child may rectify the mistakes of the teacher by making just this reinterpretation of his own experience, or — if a different statement be preferred — by interpreting the new facts in such a way as to relate them intimately to what he already knows. But if the teacher is not guided by

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partly also because these standards are
roved. In the main, the child accepts the
in unquestioning conformity. Sooner or
wever, situations arise, in the life of the indi-
and of the community, which call for reflection.
obedience to parents, for example, require the
ption of beliefs, or the selection of a career, in
cordance with their wishes, without regard to the
individual's own opinions or preferences? To what extent does loyalty to community or party or country require acquiescence in what is wrong? One way of determining such questions is to invoke the rule or standard; the other is to canvass the whole situation as thoroughly as may be, in order to shape our conduct with reference to what is best on the whole. The former course means blind conformity; the latter means the application of intelligence and the acceptance of individual responsibility for the decision that is made. The adoption of this latter course does not mean that the standards of conduct are set asi
means that the decision is not made exclusively

basis of one set of considerations. There may be, as we sometimes say, a higher loyalty, a higher obedience. It is just because an effort is made to practice obedience or loyalty to all the interests that have a claim upon us that there is a struggle and a need of readjustment. The struggle is evidence of sensitiveness to a variety of claims. This is what gives point to the declaration of the lover who was about to leave for service in war,

> I could not love thee, dear, so much,
> Loved I not honor more.

Unfortunately, it seems to be quite possible to discourage inquiry and reflection of this kind, and to foster instead the disposition to be ruled by passive conformity. When this takes place, the tendency is in the direction of unthinking conservatism. For education the real issue is not whether training in duty is to be provided, but whether the application of intelligence to affairs of conduct is to be encouraged or discouraged.

If conduct is to be intelligent, it is necessary to act with reference to what was previously called the "background of interests." Sometimes the mere recognition of these interests is sufficient for the purpose of making a right choice. At other times an imaginative construction of the situation may be necessary, in order to ensure intelligent judgment. The stimulation of the imagination may be much facilitated through oratory,

the drama, and other agencies, which perform an indispensable function in this connection. But it is clear that the readiness to enter imaginatively into situations as they arise is an attitude to be cultivated and not left to chance. Training in duty, then, should mean training to establish a liking or preference for considering imaginatively and sympathetically all the interests that may be affected by our conduct. Without this attitude of mind there can be no adequate assurance of the essential rightness of conduct.

The conclusion, then, to which the facts seem to point is that the conflict between interest and duty may be adjusted by a reinterpretation of both interest and duty. If we make interest inclusive of all matters for which we should have a care if we were to give them a fair hearing; i.e., if we take duty to mean the claim of the more "remote" considerations, the conflict disappears. There remains, then, no basis for the view that a child should be required to do nothing of which it has no "felt need"; which means that it should never be *required* to do anything at all. By the same reasoning a man should not be expected to repair a leaky roof as long as the weather is fair, if he does not happen to feel the need of a better roof until it begins to rain. What is necessary is that there should be a rational motive or reason for the pupil, apart from the fear of punishment. On the other hand, the insistence on duty does not mean that effort on its own account, apart from achievement, is a thing

to be prized. Life is too full of real problems and real values to put any premium on effort for its own sake. Duty for its own sake means blind subservience, which has been responsible for many a chapter in the weary history of misery and woe. Duty is just the obligation to be intelligent, to cultivate that responsiveness to values which is necessary for the conservation of past achievements and for further progress.

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CHAPTER VI

THE PROCESS OF THINKING

THE outstanding characteristic of the behavior of conscious beings is the fact that past experience is utilized by them for the sake of making new adjustments. As a result of certain happenings, things are invested with meanings that they did not have before. We learn from experience that clouds mean rain, that quinine will cure fever, that eggs and crockery are fragile; and we vary our behavior accordingly. The change in behavior comes about because the objects concerned have undergone a certain transformation. They have become signs or symbols of certain consequences. To say that a thing has acquired meaning is to say that it now points to some further thing; the thing that is present has become a sign of something that is absent, and in proportion as things can be so used they become instrumentalities for our purposes.

Whenever a thing becomes a sign of something else it is said to have a meaning, the meaning being that which is pointed to, suggested, or indicated. But the term "meaning" is also used in a wider sense. We may say, for example, that the tree before our eyes means a solid object, which can be cut down with an ax. It *means* this, since we are not touching it at

the moment or applying an ax to it. But the experience of seeing the tree may not contain the peculiar relationship of representing or pointing at all. The tree means solidity, etc., in the sense that it exercises a certain control over the behavior of the percipient, This explanation applies to all cases where we are dealing with familiar objects, and all such experiences are classed as cases of recognition.

The situation is different when an element of doubt or hesitation enters in. A noise, for example, may not be immediately recognized as the noise of a passing automobile, but may leave us in doubt. Was it an automobile, or was it distant thunder? The noise suggests, or points to, both automobile and thunder; but the pointing is uncertain, doubtful. The fact to be noted in the present connection is that under such circumstances the thing meant or pointed to does not blend with the sign, but is marked off and placed in a specific relation to the noise. The experience occurs in the form "noise-meaning-thunder," which, as an experience, is very different from simple recognition. The difference turns on the fact that in the more complex experience one thing is explicitly used as a sign of another thing. Whenever this occurs we have, not recognition, but inference, since inference consists in using one thing as a sign of another thing. And inference, as will presently appear, is the basic feature of thinking.

In order to make an explicit inference, then, it is necessary to mark off the thing meant, to recognize it

as a meaning. When this is not done, the object has meaning only in the sense that it controls conduct so as to make our acts appropriate to the situation; our conduct is then said to be based upon recognition and not upon inference. A meaning that is marked off is called a concept. Concepts are substitutes for things that are not present. They are very different from the things themselves, yet they enable us to act as though the object itself were present. The *meaning* "rain," for example, will not spoil our clothes or drench the ground as a real rain will do, yet the suggested rain may prompt us to take an umbrella or to seek shelter, as though it were actually raining. As was said a moment ago, meanings may be marked off from the things by which they are brought to mind; we may even get rid of these things altogether by substituting words as signs, and reflect on the usefulness or the disagreeableness of rain when there are no clouds in the sky to suggest rain. Such meanings are concepts, and they constitute the intellectual stock in trade by means of which we normally bring to bear our past experiences upon new situations. The things that function as the signs of meanings are called *data* in scientific parlance; they are the *evidence* by which our inference is supported.

We sometimes speak of inference as a result and sometimes as a process. Columbus, for example, on the basis of certain facts, made the inference that the earth is round. A statement of this kind tells us merely the

conclusion at which he arrived; it tells us nothing of the process by which the conclusion was reached. It tells us *what* he thought, but does not tell us *how* he thought. When we consider inference or thinking as a process, we soon find that there may be great variations both in complexity and in procedure. On the side of complexity, thinking varies all the way from momentary hesitation to investigations that extend over the greater part of a lifetime. In the case of the noise I may satisfy myself in a few moments, by looking or further listening, that it is the sign of an approaching storm. In the case of Darwin, the conclusion that evolution had come about through the agency of Natural Selection represented the fruit of years of arduous labor. When the process becomes more complex it grows into what Dewey calls the Complete Act of Thought. In spite of all variations in complexity and in procedure, thinking presents certain characteristic traits that are recognizable everywhere, and a process of thinking is called a Complete Act, not on the ground of the correctness or logical soundness of the thinking, but on the ground of the presence of all these characteristic traits.

A simple illustration will, perhaps, serve as a useful introduction to the question of what constitutes a complete act of thought. Let us suppose that a person enters a room and finds a windowpane broken. What is the cause of the damage? Perhaps the glass was broken by boys while playing ball. This sugges-

tion or hypothesis furnishes a starting point for further inquiry. He notes next that the broken glass is mostly inside the room, which indicates that the pane was broken from the outside. In the center of the broken pane is a circular hole, such as might be made by the impact of a ball. These facts are noticed and are explained by reference to the hypothesis; viz., that the damage was done by a misdirected ball. To explain means to recreate or to reconstruct the situation by means of concepts. If the ball hit the window, it would be likely to make a circular hole and it would force the broken glass inward so as to make it fall on the floor of the room. As we sometimes say in explaining facts of this kind: "That is just what you would expect." The facts are not relevant facts, they do not constitute evidence, unless they lend themselves to explanation in this way. This process has been called by Bagley[1] "explanatory deduction." We combine certain meanings, such as the concept of a fast-moving baseball, with a further meaning, that of an intervening windowpane, and in some way we get as a result a further meaning; viz., that the glass will be broken and the glass forced into the room. We do not actually reproduce the event, but we do reproduce it after a fashion, by means of substitute objects or concepts, and by so doing we ascertain the *implication* of the concepts, which means that we discover something further which must be true under the as-

[1] Bagley, W. C.—*The Educative Process*, p. 308.

sumed conditions. The observed facts are significant for us, they support the suggestion or hypothesis, just in so far as it is possible to interpret them in this way.

But a second procedure is still open to us. To some extent it is possible to go through this process of interpretation, not after the facts have been discovered, but in advance of such discovery. In reproducing the situation conceptually, we may conclude, or deduce, that under such circumstances not only the glass but the ball as well would find its way into the room. In Bagley's terminology this is "anticipatory deduction." We do not know from observation that the ball is in the room, but according to this process of inference, it "ought to be." So we institute a search, and find the ball, or at any rate, a ball, under a piece of furniture on the side of the room opposite the window. Then, to make the chain of evidence still stronger, we may resort once more to inference. If this is the ball that broke the window, it is likely that close inspection would reveal particles of glass adhering to its surface. If this proves to be the case, we have a further bit of evidence in substantiation of the original suggestion that the window was broken by boys who were playing ball.

The illustration is simple, yet it is typical of the way in which intelligence proceeds in reaching its conclusions. To a scientist, for example, the appearance of a valley may suggest that it was once the path of a glacier. The scratches on the cliffs bear out the sug-

gestion; they are such as would be made by masses of ice scraping past these surfaces. This is explanatory deduction. This is followed perhaps by anticipatory deduction: If there was once a glacier in the valley there ought to be evidence of moraines. If, then, further observation bears out this anticipation, the original suggestion is, so far, substantiated or verified. The investigation of the scientist is frequently of great complexity, but in type or principle the procedure is the same as in everyday life.

Let us now attempt to analyze the chief aspects or phases of this procedure. The starting point is in a problem. There is something to be explained, something that calls for thinking. Then comes a suggestion or hypothesis. At the outset this suggestion is just a tentative explanation or interpretation, a possible meaning. The suggestion offers itself, as yet, without any guarantee; it is something to be tried out, and accepted or rejected on its merits. To accept a suggestion as it comes, because no rival explanation appears or because it is an explanation that happens to please or satisfy, is the mark of an uncritical, untrained mind. If we proceed with a proper sense of the requirements of evidence, the suggestion will be used merely as a point of orientation, as a method for securing adequate evidence.

The suggestion being given, two courses are open to us. One is to go afield and garner relevant data, as we can. The suggestion then serves a twofold pur-

pose. In the first place, it directs the observation; it is much easier to note significant facts, if we know what to look for. If, for example, the suggestion has occurred to us that a friend is ill, we are much more apt to notice his pallor, his lassitude, and other indications of indisposition than would otherwise be the case. Secondly, the suggestion enables us to interpret the facts as we find them; we notice the facts just because we are able to interpret them. This procedure, then, consists in scrutiny and explanation. The emphasis falls on the finding of corroborative facts, which we explain as we find them. Or, to put it differently, we deduce the facts *after* we have found them. The second course, on the other hand, reverses this order of procedure. On this basis we deduce the facts *before* we have found them. Instead of scrutinizing facts, we reason out what further facts must be true, if the suggestion or hypothesis is true. We forecast, we anticipate, in order to learn what to look for, and this procedure, accordingly, consists in prediction and verification.

We may, therefore, distinguish four fundamental traits or phases of the thinking process; viz.,

Problem,
Suggestion,
Scrutiny and Explanation,
Prediction and Verification.

It is necessary to add a warning at once that this analysis must not be taken too rigidly or without

allowance for complexities. It may happen, for example, that problem and suggestion occur simultaneously, as when the disturbing noise suggests immediately, though uncertainly, the approach of a storm. Again, the problem and the suggestion may fall far apart, and much patient collection of data may be required for the purpose of securing a tenable suggestion. Darwin's experience is a case in point. The problem that he set himself to solve was to discover the factors that produced changes in species, but it was only after several years of persistent investigation that the suggestion of Natural Selection presented itself to him. In some situations the process of scrutiny and explanation may suffice to warrant a conclusion, without the need of formal prediction. The suggestion, for example, that the smoke observed in the next block means a burning building may be sufficiently verified by the sight of the fire engines and the people and the firemen scaling the ladders. Or, conversely, prediction and verification may overshadow scrutiny and explanation. An illustration is furnished by the procedure of certain boys on a watermelon-stealing expedition, who came upon a patch that was guarded by a dog. The dog was tied to a tree in the middle of the patch, by a rope that was long enough to reach the outermost edge. The difficulty was serious until one of the boys had the brilliant idea of eliminating the dog by running round and round the patch with the dog in hot pursuit, thus winding the

rope about the tree and shortening its length. Scrutiny was reduced to a brief inspection which showed the plan was feasible. Here the central feature of the thinking process consisted in prediction and verification, and this was the case also when the dog was subsequently unwound by a reverse process, so as to remove the appearance of evil.

As this illustration suggests, prediction may come before explanation. In the case of the broken window, it is, in a sense, a matter of accident whether we first note that the glass is inside the room and not outside, or start immediately to look for a ball in the room. Nor has our account taken explicit notice of the fact that in the process of gathering evidence our hypothesis grows as we proceed. In the case of the ball and the broken windowpane, we start with "ball thrown against window" and we end with "ball thrown against window, forcing the glass into the room, gathering particles of glass on its surface, and rolling under the dresser in the corner of the room." It is a common sort of experience that the interpretation of a fact is a much more complex affair than we had imagined at the outset. Our first surmise may not be wholly wrong, but may need to be revised and supplemented indefinitely before we reach the end. Thinking requires the finding and the elaborating and the testing of hypotheses. And, lastly, the final meaning may be made accessible only through a long line of failures. When success crowns our efforts we may forget the

sweat and agony that went before, but, as a matter of fact, our very mistakes may have helped to produce the result. The false starts, the random experimenting, the trails that lead into blind alleys, may have an important bearing upon the outcome. Some meanings, indeed, could hardly be attained save along the thorny road of error.

To illustrate this latter point, let us imagine ourselves trying to ascertain what is meant by the saying, "Truth crushed to earth shall rise again." Perhaps the statement will be taken to mean that while acts of injustice may succeed for a time, the truth will finally come to light. But inquiry soon shows that this is very doubtful. Many crimes, for example, are never detected, and it is probable that many lies are never refuted. "Murder will out" is true only as long as we ignore the exceptions. Or does it mean that truth has a tendency to prevail, though it does not always succeed? Here again a test gives negative results, for this may plausibly be claimed for lies as well, though not to the same degree. Or does the statement mean that truth remains truth, eternally and immutably, despite all vicissitudes of circumstance? If so, we meet with the same difficulty, for this holds good equally for falsehood. Or it may be that truth will "rise again" in the sense that in the long run the course of events will tend increasingly in the direction of a higher social justice; in which case the maxim becomes the expression of faith in progress.

Whatever the interpretation in which we finally rest, the process of trying out different meanings is evidently just a progressive building up of a new meaning. We are finding out more about the matter in hand as we go along. Even if we fail in the end, when we finally give up the task, the saying has a very different meaning from what it had in the beginning. If we make up our minds at the last that the saying has no meaning, then that is the very meaning it now has for us. It is something to which we need not look for guidance or insight. On the other hand, if we succeed in giving to it a consistent and adequate meaning, our abortive interpretations are embedded in the final result. The meaning grows with each repeated failure, until all is ready for the final successful attempt. In case we should take as the final meaning that amid all the unpunished crimes, uncompensated evils, and unrequited sacrifice, there is a continuous progress toward a higher justice, this final interpretation is evidently made possible and enriched by the failures which preceded it. These very failures acquaint us with the problem and enable us to see in the end that the final meaning is an adequate interpretation of all the relevant facts.

This final remark points to the goal or result at which our thinking processes are aimed or at which they terminate. We gather evidence by scrutiny and explanation and by prediction and verification; when may this process be considered finished and done?

When is the point reached at which we may claim that the hypothesis or interpretation has been proved? In practice this question may present serious difficulties. As James says, no bell rings to tell us that we have proved our case, that we have arrived at truth. But whatever practical difficulties we may encounter, the logical principle that underlies the determination of truth is fairly simple. The investigation is completed when the conclusion is supported by a considerable body of evidence and when it is impossible to find any facts that conflict with the conclusion. There must be no evidence to support a rival hypothesis. In legal phraseology this is known as the principle of Reasonable Doubt.

This principle is of vital importance in every process of inference. It is always possible, of course, to doubt a conclusion on the ground that if we knew more about the facts in the case we might find that we were wrong. This sort of doubt, however, is not evidence of a critical mind; if it is a characteristic trait of an individual, it is more properly to be regarded as the symptom of a mental disease. In a murder trial, for example, this kind of doubt would nullify any body of evidence, however cogent. Perhaps some important circumstance has been left out of account, perhaps the accused was afflicted with a temporary brain storm, perhaps the witnesses were suffering from hallucinations, or for some other reason did not see the events as they actually occurred. Accordingly, the principle is laid

down that a doubt has no claim to consideration unless it is a *reasonable* doubt; i.e., a doubt which is based on some fact or circumstance that might be used as evidence to establish a contrary conclusion. The appeal must be to actual experience. If it can be shown from experience that observation under the circumstances in question is frequently unreliable, or that the accused had acted in ways that might be taken as evidence of temporary aberration, the doubt becomes reasonable, since it has specific evidence to stand on. Unless such doubt can be eliminated by further investigation, the conclusion is not fully established, but remains, at best, a matter of probability. Proof requires the removal of reasonable doubt, and the truth of a suggestion or idea consists in its ability to organize all the relevant facts into a body of evidence to the exclusion of reasonable doubt.

So far no reference has been made to the distinction between induction and deduction. Perhaps the impression given by the preceding discussion is to the effect that a disproportionate emphasis and importance has been given to deduction. In scrutiny and explanation the finding of relevant facts becomes an occasion for deduction, while in prediction and verification the process is obviously deductive in character. Where, then, does induction find a place? Does this mean that the time-honored distinction between induction and deduction must be discarded?

Whether the distinction be retained or not, it is

evident that our present standpoint does not permit us to regard induction and deduction as separate forms of thinking. They are at most distinguishable aspects of a process that presents the same general features everywhere. That a reinterpretation is necessary appears further if we look closely into the customary definitions of induction and deduction. According to the prevailing definitions, induction proceeds from particular facts to a general law or principle, while deduction proceeds from general principles to particular facts. To begin with induction, the dictum, from the particular to the general, appears to leave out many cases that would ordinarily be classed as induction. Thus the proof that A killed B, or that the valley of the Mississippi was once an inland sea, is induction, even though what is proved is a particular fact. The proof undoubtedly involves various generalizations or laws, but these enter into the situation only for the sake of establishing something that is not a principle or law. Similarly deduction does not necessarily consist in application of a principle to a particular fact. Thackeray's story of the priest [1] is a case in point. "An old abbé, talking among a party of intimate friends, happened to say, 'A priest has strange experiences: why, ladies, my first penitent was a murderer!' Upon this, the principal nobleman of the neighborhood enters the room. 'Ah, Abbé, here you are; do you know, ladies, I was the Abbé's first penitent, and I

[1] Quoted by Bosanquet, *Essentials of Logic*, p. 140.

promise you my confession astonished him!'" The inference from these two statements is deductive in character, in spite of the fact that neither of them is the statement of a principle or law.

The difficulty is increased if we inquire what is meant by "from" and "to" in these definitions. If a scientist gathers cases in order to prove that all water is H_2O or that vaccination prevents smallpox, we can scarcely suppose that he first gathers his cases and then makes the inference. The cases are gathered in order to prove an antecedent suggestion; the inquiry does not lead up to the suggestion, but is guided by the suggestion, and the purpose in gathering the cases is simply to prove that the suggestion is a sound interpretation of the facts. As was pointed out earlier, until a suggestion occurs we have simply a problem; we are not yet thinking, but merely "trying to think." In what sense, then, do we go *from* the particular *to* the general? Or we may take a deductive inference; as, "Socrates is a man, and therefore he is mortal." In this inference the major premise, "All men are mortal," is not stated, but is said to be implied. The fact that this premise is not stated would not, presumably, affect the deductive character of the inference. There are many such cases, where the major premise is not merely omitted in the verbal formulation of the inference, but is not present to consciousness at all. This is conclusively evident from the fact that it may take considerable reflection to discover the hidden premise

upon which an inference really depends. But if so, in what sense can we be said to "go" from the universal to the particular? If it be argued that we are really applying a principle to a particular case, whether we are aware of the fact or not, and that this is what makes the inference a case of deduction, we seem to be committed to the conclusion that all inference is deduction. The proof, for example, that vaccination prevents smallpox depends upon the application (whether we are aware of it or not) of the principle that under certain specifiable conditions a sound conclusion can be drawn, or of the principle that the future will be like the past. Unless we can furnish some other interpretation, deduction swallows up everything and the distinction between deduction and induction disappears.

The import of this criticism is not that the distinction has no validity, but that it must be reinterpreted in the interests of clear thinking and sound practice. In the first place, the general or universal with which we are concerned in thinking is not necessarily a principle or law. It is a name for the suggestion or hypothesis by which our inquiry is guided, and the suggestion is called by this name because it serves to knit the facts together in a common meaning; it applies to all the facts of the case, extends to all of them, but is not itself one of these facts. By particular, on the other hand, is meant the facts that are thus united so as to make them all serve as evidence of the truth of the suggestion. Secondly, the distinction between induc-

tion and deduction turns on the use that we make of the suggestion or hypothesis. Given the suggestion, we may proceed to collect evidence in either of two ways. We may undertake to find facts that can be explained by means of the suggestion, or we may predict, on the basis of the suggestion, what facts we shall find. In either case, to be sure, we employ deduction, since we combine or relate meanings in such a way as to show that certain facts are "just what you would expect." But in the one case the deduction is made after the fact is found; in the other case it is made before the fact is found. The procedure is varied because some kinds of evidence cannot be predicted but must be found, whereas other kinds of evidence must be predicted in order to be found. In the case of a robbery, for example, we could not predict that the criminal would lose a glove or button in the room, or that he would tear his coat and leave a bit of cloth on a projecting nail in climbing through the window. These facts must be discovered through observation before we can build a theory around them; i.e., the mental reconstruction, the deductive process, cannot take place until after these facts have been found. This is the true meaning of the saying that we go from the particular to the universal or the general. On the other hand, when we make a mental reconstruction of the occurrence we can fill in certain details which have not yet been discovered, and which might easily be overlooked if they were not pointed out in advance.

If our hypothetical robber got in through the window, there must be tracks in the soft soil outside and there must be fingerprints on the casement. Moreover, it is likely that the stolen goods will be found in some pawnshop in the city. These details are filled in to complete the picture. If we assume that certain things took place, we are obliged to think that certain other things likewise took place. A new field of discovery is thus opened up; and when we proceed in this fashion we are said to go from the general, —i.e., from the meaning or suggestion — to the particular case.

The reason why induction has seemed so different from deduction and so independent of it is presumably that the gathering of facts has loomed up large in the sciences. We all know that a suggestion may be supported by a considerable body of evidence and yet prove to be erroneous. The untenability of a suggestion comes to light when we discover facts that are incompatible with the suggestion. In order to avoid error it is necessary to canvass the facts carefully, and for this purpose science has built up an elaborate technique and has invented many devices. To prove that vaccination prevents smallpox, or that illiteracy is connected with crime, the scientist has recourse to statistical methods; to prove that memory functions best under certain conditions or that certain drugs have certain effects, he resorts to experiment; to gather the facts that he needs in order to secure a suggestion or verify a prediction, he applies the micro-

scope, the telescope, the test tube and innumerable other appliances. To the popular eye the most prominent of these methods is, or at any rate has been, the gathering of cases, with the result that induction has been defined in terms of this method. But if we are to base our conception of induction on the procedure of science, we must make it more inclusive. A process of inference is inductive, then, in so far as it involves a certain plan or technique for handling facts, and induction may be defined as a name for the methods for arranging or regulating evidence.

As has already been indicated, deduction is a certain process of manipulating concepts. Although common enough, this process, when analyzed, takes on an appearance of mystery. This mystery centers on the fact that concepts have *implications*. If we combine meanings in a certain way, we get certain further meanings, which "follow" by a peculiar necessity. The process is carried on, not with things, but with meanings, which serve as substitutes for the things. In explaining the bit of cloth on the projecting nail, we do not combine or relate the actual robber with the physical window, but we combine the concept "robber" with the concept "scraping past nail," and as a result we get the further meaning of torn clothes. It is just because man can deal so freely with substitute objects that he is intellectually supreme on his planet. In chemical processes, certain substances are united to form a new substance; and this

furnishes a certain analogy to what takes place in deduction, where we combine meanings in order to get other meanings. These new meanings are said to be implied in the old ones, and deduction, accordingly, may be defined as the process of drawing out the implications of meanings.

It remains to trace out the bearing of this standpoint on educational theory and practice. Since education is concerned preëminently with the training of the mind, our conception of how the mind operates is bound to have a determining influence, for good or for evil. The significance for education of this interpretation of thinking is a matter of some complexity and difficulty, and the discussion of it must be left to the following chapter.

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CHAPTER VII

TRAINING IN THINKING

At the present time it requires no extended argument to justify the importance of training in thinking. The sentiment against the memoriter method of learning is fairly unanimous. In some cases the reaction has perhaps gone to seed, but at all events it is distinctly in the ascendancy. This emphasis upon thinking has led to the analysis of the recitation into "formal steps of instruction," for the guidance of the teacher in developing the thinking of the pupils. The best known of these analyses is that of Herbart and his followers, who have developed in considerable detail what now goes by the name of the "inductive development lesson." This analysis has been supplemented by the "deductive development lesson," in order to provide training for both inductive and deductive thinking.

The Herbartian development lesson, in its current form, provides for the following steps: preparation (leading up to a statement of the aim); presentation; comparison and abstraction; generalization; application. To borrow Bagley's illustration, let us suppose that the purpose of the lesson is to develop the principle that vapor condenses with a fall of temperature.

The pupil is first reminded of certain familiar experiences, such as the condensation of breath exhaled on a windowpane and the condensation of the vapor from a tea-kettle. This is the stage of preparation, which terminates in the question or problem why this happens. Then comes presentation, which consists in taking up new cases, such as may be provided by simple experiments; e.g., breathing on hot and cold surfaces or filling a pitcher with ice water so as to produce a gathering of moisture on the surface of the pitcher. This is followed by comparison and abstraction, which takes particular account of the fact that vapor sometimes becomes visible and sometimes does not, the purpose being to connect the presence and absence of this phenomenon with the concomitant presence and absence of a fall in temperature. The formulation of this connection is the step of generalization. The final step of application consists in interpreting some further fact not previously considered, such as the formation of clouds. The generalization and application could then be used as the preparatory step of a lesson on precipitation.

This scheme is called the inductive development lesson because it is intended for the development of principles, laws, rules, and definitions through a study of individual facts. Since induction is but half the story, however, there is needed also a deductive development lesson, which works in the opposite direction; viz., from principles to facts or to less general prin-

ciples. The process is divided into three parts, or aspects, the first dealing with data (including facts and principles), the second with inference, the third with verification. The facts are furnished by the situation that calls for thinking, while the principles accrue to us from previous experience. In the case of the broken window, for example, the appearance of the window and the distribution of the glass are the facts to which we apply certain principles concerning the fragility of glass, and concerning momentum and gravitation, these principles being supplied by memory. These facts and principles enable us to infer the cause of what is observed (explanatory deduction), or to infer certain further effects (anticipatory deduction). The inference that the damage was done by means of a baseball is explanatory, while the further inference that the ball must be somewhere in the room is anticipatory. Or, to recur to our previous illustration, the suggestion that vapor condenses with a fall of temperature can be used both to explain the facts that are already at hand and to predict further facts not yet observed; e.g., that snow while melting in a pan over the fire, or that liquid air, when released, will produce vapor. An anticipation of this sort could then, of course, be subjected to the test of experiment so as to verify the inference.

The illustration of the vapor was intended, indeed, to illustrate the inductive rather than the deductive development lesson. It was introduced just now under

the latter head with malice aforethought, in order to raise the issue as to the real distinction between the processes labeled respectively induction and deduction. Apparently the distinction turns on the fact that in what is called induction the principle or suggestion by which the given facts are to be explained must somehow be found before its applicability or adequacy can be tested, whereas in deduction the explanation is at hand and simply awaits application and testing. If the pupil does not yet know that vapor condenses with a fall of temperature, his task, under the guidance of the teacher, is first to evolve this explanation and then to test or verify it. After the explanation has occurred to him in some way, he must review the facts to assure himself of its applicability, and he is also supposed to make further applications. In deduction, on the other hand, the key to the problem is given in advance, in the form of principles that are already known, and the work that is to be done is confined to application or testing.

Stated differently, the distinction between induction and deduction seems to depend on the question whether the problem occurs with or without a suggested explanation. Sometimes the problem alone is given at the outset, further facts must be gathered in order to secure a working hypothesis, and the name induction seems to refer only to the process of *finding* the hypothesis. After it has been found, there is no difference between induction and deduction. Whether

the suggestion, when it comes, is a new generalization or something that was already known, appears to make no appreciable difference in the procedure. When the suggestion has once arrived, it is used to explain the facts already at hand and to forecast further facts, and for this purpose it makes no difference whether the suggestion is something new or old. Besides, there are all degrees of novelty. In a certain sense the discovery of the law of gravitation was just an extension of the principle that unsupported bodies fall, and the discovery that air is a fluid was an extension of the law of liquids so as to make it include air. When a principle is thus extended it may, indeed, undergo considerable modification. When Newton included the moon in the class of falling bodies, he was obliged to reinterpret the notion of "falling body." Falling, as it turned out, had reference, not to an absolute "down," but to the tendency of bodies to draw together. The relation of bodies was conceived as more like that of two boats in the water, the occupants of which are trying to bring them together by pulling on opposite ends of a rope. In the case of the discovery that air is a fluid the transformation was much less extensive. The moral is that the inductive character of a thinking process cannot be determined by inquiring whether the aim of the process is the discovery of a "new" principle or law. Whether or not a new principle is involved is particularly irrelevant since the suggestion, when once obtained, functions without regard to this

question. The procedure is the same in either case, so that there would be no justification for maintaining a special inductive method to be used for inquiries aimed at the discovery of new principles or laws.

If it can be maintained that the traditional distinction between the inductive and deductive development lesson simmers down to the question whether the problem suggests an explanation at once or only after a search has been made for it, we are obliged to face the further question whether this distinction warrants the attempt to cultivate two different methods. As a matter of fact, the gathering of data in order to secure an explanation usually consists in trying out a series of suggestions until the right one is found. In other words, even the search for an explanation is very much like what happens after the suggestion is found and is being applied. Moreover, the belief that induction is different from deduction and independent of it obscures the fact that the two are bound up together. If we do not recognize the presence of deduction in what is called induction, we naturally do not try to cultivate it. The distinction thus has an element of danger in it, and besides tends to confuse the teacher who attempts to observe the distinction. In practice it is frequently difficult to tell whether a given process of thinking is inductive or deductive, which is natural enough, since it is both. As was explained in the preceding chapter, induction is not a separate process at all, but is simply the name of one phase or aspect of the

complete act of thought. An investigator, for example, may gather cases of infantile paralysis, either to get a working hypothesis or to test a hypothesis that he has in mind. Besides gathering cases he may examine the heart action of the sick persons, make blood tests by chemical methods, and the like. In all this work he is using certain methods to arrange the facts so that they will serve either to suggest or to test a hypothesis. Wherever we find this methodical handling of data we apply the name induction. It must be remembered, however, that this does not go on apart from deductive processes. As he gathers his facts, the investigator is constantly entertaining suggestions or making guesses, which he uses to interpret the facts already at hand, or to anticipate further facts. Since induction and deduction are so closely knit together, the attempt to use two different methods is likely to be more harmful than helpful. The teacher will be more effective if he tries to develop all-round thinking, no matter what the subject matter may be, in connection with which the thinking takes place.

With this conclusion in mind, let us now take a second look at the Herbartian Five Steps. We may note first that this scheme is not to be taken as an analysis of thinking, but as a plan or method by which thinking is to be trained. But it is evident that the Five Steps — Preparation, Presentation, Comparison, Generalization, Application — must correspond, in some measure, to the actual procedure of thinking, if the

method is to be a safe guide. Do we, in fact, find such a correspondence?

At first sight this correspondence does not seem very obvious. Thinking, according to our previous analysis, starts with a problem, but the Herbartian plan makes no specific mention of a problem. To all appearances, the stage of preparation has no reference to thinking at all, so far as the pupil is concerned. It is supposed to consist of nothing but a review of what is already known, without any suggestion of application or of comparison with other things. Being just a rehearsal of what is already familiar, it has neither the charm of novelty nor the zest that springs from the sense of a problem. Consequently, also, there is little incentive to attention and concentration, and the performance easily becomes tedious. Secondly, the plan seems to require that the steps be arranged in a more or less fixed order, whereas thinking does not follow any fixed order. In explaining the condensation of vapor, for example, we are involved in comparison from the start. The breath on the windowpane and the vapor from the kettle must be seen as two instances of the same thing or the proceedings have no unity or coherence. The comparison, in this case, is what stimulates the attention and sets the problem. Perhaps some bright pupil will suggest at once that condensation is due to the fact that vapor settles on solid objects. This suggestion, it will be observed, involves not only comparison, but abstraction and gen-

eralization. The common feature, "solid objects," is abstracted and is stated in generalized form; viz., "vapor settles on solid objects." In support of this suggestion he may cite some further fact, such as the hoarfrost on the roof on a cold morning, or the "frozen breath" on a man's moustache in winter. Here we have the stage of Application; and all this may occur near the beginning of the lesson, before Preparation and Presentation are completed and before the true explanation has been discovered.

The illustration will perhaps serve to show that the order of the steps is not to be taken too seriously. To repress suggestions until the stage of comparison and abstraction is reached is to become pedantic and mechanical, and has the effect of discouraging the spirit of inquiry. On the other hand, if we try out the suggestion that vapor settles on solid objects, and show by reference to the steam kettle and by the fact that vapor does not condense on a man's moustache in summer that the suggestion is inadequate, the case is very different. The consideration of the suggestion gives the pupil the feeling that he is coöperating in the solution of the problem; moreover, the discovery that the explanation does not work brings in more facts, so that the plot thickens, and the pupil is "on edge" to try again. By the introduction of further facts, such as the difference between breathing on a hot and on a cold glass, further suggestions may be elicited. Whether the right suggestion comes finally from the

pupil or from the teacher, the attitude of inquiring and testing is maintained. Whether the suggestion is tenable or not, the proof consists in *more* comparison and application. Our only safe method is the development of the problem itself. We move back and forth over the field; the same step may occur a number of times and the order of the steps may vary indefinitely. Inquiry is essentially experimental in character; we follow any lead that looks promising, and even if it fails to give us the solution that we seek, we come back to the starting point with a better insight into the nature of the problem itself and consequently with a better prospect of succeeding the next time. Even if the solution of the problem is finally furnished by the teacher, as necessity or expediency frequently requires, this preliminary canvassing of the problem may be the best preparation for an insight into the meaning of the problem and its solution. In any event a rigid, mechanical adherence to prescribed steps is bound to defeat the purpose of providing training in thinking.

These comments, however, are not intended to mean that the Herbartian plan is of no value. It may serve a useful purpose as guide to the teacher in organizing beforehand the material to be presented. The step of preparation means that the familiar experiences of the pupil form the proper starting point. They furnish the background with which the new knowledge must be assimilated, and it is easy to fall into the error of

assuming more of a background than the pupil actually possesses. To make this mistake is to "talk over their heads." Presentation has to do with the new material that is to be introduced, such as experiments, maps, pictures, or other material. Comparisons and applications must be made and the conclusions formulated. All this must be considered beforehand in order to make sure that the work of the classroom will connect with the actual experience of the pupil and will enlarge and transform that experience so as to incorporate the new facts and principles. Without some such preparation there can be no effective teaching, and the Herbartian plan may perhaps be used to make such preparation more systematic and thorough. But the use that is to be made of the preparation must depend upon the way in which the subject happens to develop. Such development is never twice the same. Very often the function of the teacher may consist largely in raising "reasonable doubts," after the subject is once under way. That is, he may help along the development of the subject by bringing in further facts, old or new, which the suggestion or hypothesis that is provisionally accepted must be able to explain. This corresponds to what was previously called scrutiny and explanation. Or he may invite predictions by inquiring what the given hypothesis would lead one to expect under certain conditions. In short, training in thinking requires the use of educational material so as to stimulate suggestion, ex-

planation, and prediction, and this cannot be done by adherence to a detailed program antecedently laid down, but only along the zigzag route by which actual thinking advances to its conclusions.

It is sometimes supposed that thinking is encouraged when pupils are told to think things out for themselves. But thinking cannot go on in a vacuum; unless there are facts to furnish suggestions and further facts to invite explanation by means of the suggestion, or to prompt the making of predictions, there can be no progress. When the pupil is unable to proceed, the alternative is not to dish up the whole subject as so much information, but to furnish the needful facts which will make it possible for the pupil to go on once more. The teacher's function is much like that of Socrates, who conceived it to be his mission to irritate his countrymen to thought by asking questions and by making reference to facts which they were disposed to overlook. More often the peculiarity of the thinking process is ignored altogether; the teacher conceives it to be his business to impart the subject in the logical form in which it is laid out in the textbook, and is disposed to regard questions and suggestions on the part of the pupils as vagaries and distracting interruptions. The result of such teaching is not simply that thinking remains undeveloped, but probably that thinking is less effective than it would have been without such teaching. The pupil is trained to accept things on the basis of authority and to re-

press the tendency to question or investigate, and the result that may naturally be expected is that this disposition will be carried over into affairs of life.

The need for training in thinking is doubtless one of the reasons for the interest at the present time in what is known as the "project method." In this method it is attempted both to utilize the spontaneous tendencies of the child and to provide a favorable setting for the development of thinking. The attempt is made to set the pupil to work on problems in their "natural setting," which usually means that the pupil is engaged in some undertaking in which he is interested and for the completion of which he finds it necessary to look up data, make experiments, and in other ways acquire knowledge. As a protest the movement in the direction of the project method is undoubtedly of significance. As a distinctive method or doctrine it suffers from the defect of a fundamental ambiguity. Up to the present it has not been made clear whether the distinctive feature of the doctrine is the idea that learning takes place most effectively when knowledge is sought as a means to an end and not as an end in itself, or the idea that effective learning requires a "natural setting." The typical problems of the method have a "natural setting" and they are also "practical" problems, in the sense that learning is incidental to doing something else, such as making a table or a boat, which requires computation and measurement, raising seed corn, which requires knowledge

of seeds and of cultivation, and similar problems.

There is no doubt that such problems may have considerable educational value, but this is not the same as saying that knowledge must always be treated as a means to an end and not as an end in itself. The natural inquisitiveness of children suggests that it is not impossible to cultivate knowledge for its own sake. A boy whose knowledge of number relations is confined to what he acquires in the solution of merely practical problems does not have the mastery of numbers that is required for the purposes of adult life. To get such mastery he must develop a love for numbers for their own sake; he must be interested in number relations on their own account. This is necessary in order to give knowledge the general quality by which it becomes detached from particular applications and is made available for other purposes. Unless it is thus detached and made an end in itself, it does not take on the "logical organization" that is necessary for effectiveness. Practical problems may be valuable grist for the educational mill, but if they do not help to develop an immediate interest in certain kinds of knowledge they have not accomplished their mission. Without this interest in knowledge for its own sake it is impossible to secure the margin of information that is necessary for dealing with future emergencies; or, to put it differently, without this immediate interest there is no adequate provision for future growth.

The demand that problems be presented in their

natural setting likewise has a certain obscurity. In so far as it refers to the carrying on of problems in home surroundings, away from school routine and school conditions, the meaning is clear enough. But it is also advocated as a school method, in which case it seems to mean one of two things: (*a*) that all problems must be of a "practical" sort, as is normally the case with problems that arise outside of the schoolroom; or (*b*) that all problems must relate to the actual experience of the pupil, and not become just "school problems," in which verbal proficiency takes the place of insight. Physics or history, for example, must give new meanings to our everyday world, if they are to have a natural setting. The first of these alternatives has already been discussed. The second gives an interpretation to the project method that leaves no room for the claim of novelty or of distinctiveness as a method. By "natural setting" we can scarcely mean that conditions must be the same as out of school, as though the use of improved facilities in the schoolroom were something to be deplored. Apparently, then, it must refer either to the aim of study as practical and not theoretical, or else to the relation of what is studied to the previous experience of the pupil.

The advantages of providing training in thinking have already been indicated, more or less indirectly, in the foregoing discussion. If our material is so organized as to provoke thinking, we have provided the

condition for intellectual growth. Mental development requires a continuous reconstruction of past experience so as to provide a place for the new material, and this reconstruction is the process of thinking. As a result of this process the new becomes assimilated to the old, and the old takes on a deeper meaning than it had before. When, for example, Darwin formulated the principle of natural selection, the discovery involved a reinterpretation of what had previously been known; old facts were seen in a new light. This is exactly what happens in the life of every individual, in so far as new experiences are brought into relation with former experiences through the process of thinking. Unless there is such a process of reconstruction, through the medium of thinking, learning degenerates into memorizing. Pupils often memorize and recite with an almost fatal facility, thus creating the impression that they understand what they are saying. Sometimes teachers unconsciously encourage evil habits of this kind, by insisting on recitations of the touch-and-go sort, and exhibiting impatience with the more thoughtful pupil, who, precisely because he is more thoughtful, tends to hesitate because he is engaged in tracing the bearings or applications of a question or problem. To what absurdities such training may lead is exemplified in the following anecdote told by Horace Mann:[1]

"It recently happened, in a school within my own knowledge, that a class of small scholars in geography,

[1] *Life and Works of Horace Mann*, Vol. II, p. 68.

on being examined respecting the natural divisions of the earth — its continents, oceans, gulfs, etc., — answered all the questions with admirable precision and promptness. They were then asked, by a visitor, some general questions about their lesson, amongst others, whether they had ever seen the earth about which they had been reading; and they unanimously declared in good faith that they never had."

The first natural result, then, of training in thinking may be expressed by saying either that it prevents verbalism, or that it organizes and relates our knowledge so as to give meaning to our statements. Then there is the further gain of training in the methods of thinking. In the sciences the specialist acquires a sort of sixth sense, which tells him whether a conclusion is likely to prove true, or which warns him against a conclusion as probably erroneous. "The doctor will feel that the patient is doomed, the dentist will have a premonition that the tooth will break, though neither can articulate a reason for his foreboding. The reason lies embedded, but not yet laid bare, in all the countless previous cases dimly suggested by the actual one, all calling up the same conclusion, which the adept thus finds himself swept on to, he knows not how or why." [1] But the same sort of thing is true of other persons as well, though perhaps in a less striking way. A person trained in thinking has similar premonitions. He may feel that there is something

[1] James, W. — *Principles of Psychology*, Vol. II, p. 365.

wrong about a conclusion, even though he is unable, at the moment, to give a reason for his misgiving. He may have a dim feeling that the language is ambiguous, that there is some sort of questionable assumption underlying the inference, or that the comparisons have not been made with proper care. His previous experience with such matters comes to his assistance and warns him to be careful. Some features of the matter look dubious, and these invite further scrutiny. In short, because he has practiced thinking in the past, he is able to think more effectively now. He knows better what to look for, and he is also better able to judge when a matter has been satisfactorily proved.

Lastly, there is the attitude of open-mindedness, which is the supreme achievement of training in thinking. In matters that require thinking we are frequently predisposed to take sides on the question at issue. When our feelings become engaged, it may be very difficult to maintain the attitude of impartial inquiry. We are too eager to have the question settled our way to be prepared to examine with care what may be said on the other side. Our natural disposition is that of a partisan, and not that of the impartial investigator. The latter attitude is one that must normally be acquired by systematic repression of disturbing feelings during the process of inquiry, by cultivating the disposition to give consideration to all the angles of the question, before reaching a decision. In the field of

the sciences this requirement has a sanctity akin to that of a religious duty. The obligation of education is to give it a similar authority in the dealings of men with one another. If we were habitually as much concerned to understand intimately the case of our opponent as we usually are to prove or justify our own, the chief obstacle to the practice of justice and of coöperation would be removed, and the solution of the perplexing problems of the day might safely be left to take care of itself.

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CHAPTER VIII

THE TRANSFER OF TRAINING[1]

THE question of the transfer of training is one of those problems which seem to take a new lease on life with each successive generation. In spite of the fact that it is now several centuries old, this problem, to all appearances, still enjoys a tolerable state of health and vigor. As usually stated, the doctrine of transfer means that mental power or mastery gained in one subject or field of activity is applicable to any other field. It does not much matter in which connection we cultivate our powers of reasoning, memory, imagination, etc., provided only the thing is done. A power thus cultivated can then be used for other purposes or ends, in much the same way that strength developed by boxing or wood chopping gives greater efficiency in pushing a wheelbarrow or handling trunks.

The doctrine and the illustration are alike familiar. In its traditional form the doctrine was based on the belief that there were "general powers" or "faculties" which could be trained in much the same way that a muscle is trained. At one time, this belief had considerable plausibility. It was supported by the "fac-

[1] This chapter is based on an article by the writer, entitled "A Reinterpretation of Transfer of Training," in *Educational Administration and Supervision*, Vol. V, p. 105.

ulty psychology," inherited from the age of scholasticism, and it also found considerable support, in appearance at least, from the facts of experience. A man who has learned to work will stay on a new job with less boredom and impatience than one who has not trained himself to follow a routine; he seems to have acquired some general capacity for holding himself to the task in hand. In the same way a person with a general education is able to act more intelligently when confronted with a new task, such as managing a farm or a store. If a muscle is used during the day it grows stronger over night, with the result that it is more effective the next day. By analogy the effect of training is to make our powers or faculties grow stronger or more effective, no matter for what purposes they may be employed.

In the course of time, however, this explanation lost much of its plausibility. In the first place, it did not seem to square with the conclusions of later-day psychology. In the light of new discoveries it became impossible to believe in the existence of such powers or faculties.[1] Secondly, it was found that the theory does not work in the way that one would naturally expect. A sailor who has grown weatherwise in observing the sky and the sea does not, for all his training in observation, seem to become more expert in observing the styles of dresses or of architecture; a man

[1] The reasons for the rejection of faculties are given in more detail in Chapter IX.

who is trained in mathematics does not thereby become noticeably more skilful in figuring out the moves in politics or in a horse trade; and memorizing the forms of a conjugation has no appreciable bearing on the ability to remember the items on a grocery list or the requirements of good manners at a social gathering. Experimental evidence has shown that the doctrine took much for granted that was not true to fact. "Accuracy in spelling is independent of accuracy in multiplication, and quickness in arithmetic is not found with quickness in marking misspelled words; ability to pick the word 'boy' on a printed page is no guarantee that the child will be able to pick out a geometrical form with as great ease and accuracy." [1]

As a result of all this, there has developed a disposition to be skeptical about transfer of training. It has been argued that all training is "specific" and not "general," by which is meant that a person may be trained so as to be observant and resourceful within a certain field, but that this training will not increase his efficiency in other fields. A boy may learn about plumbing or banking, but this training will not make him a better farmer or grocer, except in so far as the training required for these different occupations happens to be identical. Training must be specific, because abilities are specific. Instead of dealing with

[1] Norsworthy, N.—"Formal Training" in *New York Teachers' Monographs*, 1902, Vol. IV, pp. 96–99. Quoted by Bagley, *Educative Process*, p. 208.

faculties, we must concern ourselves with specific abilities, such as ability in spelling, writing, chemistry, Latin, and trigonometry. More likely than not, these specific abilities will be found upon analysis to be made up of groups of other abilities still more specific and fundamental. Ability in a language, for example, includes a sense for grammatical and rhetorical construction, a memory for declensions and conjugations, and the like.

The contention that all education must be specific is ordinarily taken as a repudiation of the doctrine of transfer of training. Closer scrutiny, however, tends to raise doubts on this point. What it amounts to in the end is usually that the faculties are much smaller or more circumscribed than was formerly supposed. A faculty is none the less a faculty because it is small or because it is called a "specific ability." Nor do we escape the curse of formal discipline by the simple expedient of narrowing the range of transfer. A college course may give a man a liberal education or it may not; a teachers' course may fit a person for teaching or it may not; a course in grammar may give a boy a fair command of his native tongue or it may not. Even if the school requirements are met, the net result may be failure. In cases of this sort, it will be observed, we have direct preparation. The failure springs from the inability to apply the training. Even the most extreme advocate of specific education would expect the pupil to apply what he has learned to new

situations. If a pupil could solve no problems of an arithmetical kind or could parse no sentences except those which he had studied in the schoolroom, the purpose or value of the training would hardly be obvious. There must be transfer of some sort to new problems within the same field, or training would be futile. We do not get rid of the problem of transfer by using a hazy term like "specific ability." And if this be granted, we seem to be back where we were, except that the faculties are now shown to be much less inclusive in range than they were formerly supposed to be. The only alternative to this is to give an interpretation to transfer that does not depend upon faculties at all. Unless we do this, we are, after all, maintaining the scholastic tradition and laying ourselves open to the same sort of errors in educational practice. In other words, if we reject the solution that is offered by the faculty psychology, we must raise the previous question and ask what is meant by transfer of training.

By way of approach to this problem it may be suggested that experience may modify subsequent conduct in either of two ways: viz., through the formation of habits or through the perception of meanings. Stated in its most general form, the law of habit means that when a stimulus is repeated, the organism tends to repeat what it has done before. In the course of habit formation, however, random movements tend to be eliminated, while those which are adaptive in char-

acter are retained and repeated over and over again. As a result of this, the activity gravitates more and more to the level of reflex activity, in which the activity runs off the reel along a line of connections laid down in the nervous system independently of experience. For practical purposes the only difference between reflex and habitual activity is that the former is determined by neural connections that are inborn, while the latter is determined by connections that are acquired as a result of experience. In so far as a habit becomes ingrained, it becomes indistinguishable from activity of the purely reflex type.

That habit is of fundamental significance for life is a well-known fact. In so far as activities become stereotyped, we turn them over to the neural machinery, which leaves the attention free for other things. Without the element of habit we should acquire no expertness; and the simplest activities, such as dressing, walking, reaching, etc., would absorb all our time and energy. Moreover, habit is an important factor in the transfer of training. The tight-rope walker utilizes the habit of walking, the carpenter utilizes habits in hammering and sawing, the mathematician relies on habit in the use of the multiplication table and other simple combinations of numbers. Habit in itself, however, is the reverse of transfer. Its outstanding characteristic is not flexibility but fixity of response. Habit is just an acquired reflex; and reflexes, as in the case of the moth and the candle, seem

to have no capacity for change in the direction of better adaptation as the result of previous happenings. Yet it is precisely in this power of adaptation, in the ability to profit by previous experience, that transfer of training consists. In order to make possible such adaptation, some other element or factor must supervene, which is able to modify or direct our habitual reactions so as to make them agencies for different ends.

This other element is the element of meaning. If the moth, as a result of previous happenings, were capable of comprehending the meaning of the candle, the tendency to fly toward the candle would be suppressed, and adaptive behavior would be secured by means of a different reflex or habitual reaction; viz., that of withdrawal. Behavior becomes flexible or adaptive when reflex and habitual tendencies become the servants of meanings. We avoid a mud puddle, not because we are born with a reflex for mud puddles, but because it means wet feet; we reach for the apple because it means something to eat; we take our umbrella because the sky looks like rain. Every normal person has on hand a certain stock of meanings by which to give direction to conduct, and the possession of a wide range of meanings implies a more or less commensurate ability to adjust conduct to the nature of the environment. In so far as we know the meaning of things, we know what to expect of them and what can be done with them; in other words, conduct becomes intelligent in

proportion to our understanding of the world in which we live.

What is a meaning? In general, a meaning is anything that is suggested, pointed to, or indicated by something else. The noise in the street means street-car, the cloud of smoke means a fire, the falling leaves mean the approach of winter. But human beings have the capacity of detaching the thing thus suggested or indicated and treating it independently, apart from the specific setting or context. A child on the roof of a house suggests falling, but the falling can be disengaged from its concrete setting and made a subject of independent interest, as when we study falling bodies in order to determine the law of momentum or acceleration. In much the same way we detach meanings when we study school systems, or soil composition, or business organization, in a variety of forms, the result being that we can talk about these topics without necessarily referring to any specific instance. When a suggested thing, a meaning, is thus detached and provided with a name, it is called a concept. Our concepts may have a great wealth of content, so that they are applicable to a wide range of cases; in fact, the great advantage in detaching meanings in this way is that they become more readily available for use in a variety of situations.

This brings us to the subject of transfer. As was indicated just now, the reason why meanings make conduct so adaptable is that they are transferable;

they can be learned in one context and used in another. This is, indeed, one of the commonest facts of life. If a person has once collided with a tree, we may expect him to avoid a brick wall, even if it turns out that he has never seen bricks before. He recognizes the old meaning — hardness or collision — in the new context. If he has been swindled with mining stock, he is likely to be a little more cautious about oil wells or schemes to extract gold from sea water. Old meanings are transferred or given a new application. Some persons are clearly more able than others, but there is *some* transfer, some extension in the use of meanings, in the case of every individual. There are limits even to stupidity.

It is true that we do not ordinarily regard this sort of thing as transfer of training. We have been inclined to take for granted that a person who has made a study of the gasoline engine will know better what to do if he is called upon to repair an engine, even though it be an engine of a model that he has never seen before, or if he is asked to design, say, a Liberty motor. But unless he can transfer, apply, his previous knowledge to the new situation, his previous training will not help him, any more than a book on etiquette will make him a finished diplomat. Transfer of training has commonly meant something quite different. We have lived on under the influence of the scholastic psychology and have expected to get education by a kind of magic. Transfer of training has meant the

question whether tinkering with a gasoline engine will improve a man's taste in lyric poetry, or whether solving problems in square and cube root will make one more expert in the field of classic philology.

The conclusion, then, to which we are led is that transfer of training means the extension or application of meanings to new problems or new situations. In making these applications we utilize previous habits. A ball player, for example, has a certain equipment of habits, such as walking, running, catching, and throwing, but these habits must constantly be modified and directed to suit the needs of the moment. Sometimes the ball must be caught and sometimes not; sometimes it must be thrown to one place and sometimes to another; sometimes he must run and sometimes not. What he is to do is not determined by another habit, but by a quick "sizing up" of the situation. Unfortunately, the word habit is used in various ways, and this tends to obscure the relation between habit and meaning. We sometimes say that the player throws the ball to first base as a matter of habit, in the sense that a certain meaning is suggested and acted upon without consideration of other possibilities, because this type of situation has occurred so frequently before. Here habit is not opposed to meaningful behavior, but is a name for behavior in which the meaning requires a minimum of readjustment or reorganization. In fact, habitual activity that involves no meaning seems to be distinctly the exception, rather than the rule.

Again, the word habit may connote an established ideal or preference, as when we say that a man is in the habit of giving liberally to charity, or of spending his evenings at the club. Here again the word cannot be taken to mean that the activity is not directed by meanings. All conduct is normally interwoven with habit, but the fact remains that meanings furnish the flexibility or adaptability which constitutes transfer of training.

Whether an individual can apply the meanings or concepts which he has already acquired, when he is confronted with a new situation, is, to a considerable extent, no doubt, a question of native ability. Newton, for example, was able to apply the familiar concept of "falling body" to the motion of the moon, because he was able to see the resemblance between this motion and the falling of the apple. His previous training had furnished him with some information about falling bodies and about the components of a circular motion, but for the application of this knowledge he was left to his own devices. The task of education is done when it has furnished the equipment, the raw materials, for making the application. Another illustration may be added, which is furnished by an incident that occurred during the Civil War. In the early period of the war the leaders of the North were much embarrassed by the runaway slaves that flocked to the Federal armies. "To return the runaways to slavery aroused indignation in the North and even in Europe, while to proclaim them free alarmed the bor-

der states and the conservatives of the North. General Benjamin F. Butler found the happiest solution of all. He declared the negroes who came under his military jurisdiction 'contraband of war' and held them just as any contraband article is held or treated in time of war." [1] The situation was unique. None of the Northern leaders had been educated so as to know beforehand just what to do under such circumstances. The difficulty was wholly unforeseen. Their training did indeed include the concept "contraband of war," but when the situation arose it depended upon individual ingenuity to apply this meaning to the new problem and thus secure a satisfactory solution of the difficulty.

All this is fairly obvious. No amount of training can convert dulness into genius, and if the individual is too slow-witted or too much upset by the emergency to use his resources, this fact can hardly be blamed on education. But, unfortunately, the failure to apply previous training to the new situation may be due to the character of the training. If the concepts are mainly verbal, too empty to furnish suggestions, then education must assume the responsibility. James's story of his struggle with his student lamp is a case in point. The lamp would not burn properly, and it was only by accident that he discovered the remedy, which consisted in propping up the chimney so as to let in more air. James had doubtless studied the theory of combustion in physics, but in spite of that fact the

[1] Morgan, J.—*Abraham Lincoln*, p. 310.

flickering lamp suggested nothing whatever to him. The theory was for him just "book learning," which could not be converted into practice.

The complaint against "book learning" is of course familiar. The form in which the complaint is sometimes made gives one the impression that books are regarded as a hindrance to education. What is properly meant is that knowledge easily passes muster when it is, in fact, mainly verbal; i.e., when the meanings are not sufficiently developed to permit of ready application to new problems. Transferability, then, is the test. In so far as training fails to make adequate provision for transfer or application it becomes formal in an evil sense; and this is just as true of "specific" as of "general" education. A professional training may be formal in this sense; and when this is the case, it appears that the recipient of such training can do everything that is required of him, except that he cannot apply his training to new problems. The worst feature of such training may be that its limitations are entirely unsuspected. The inability to make application, which results when our meanings are lacking in content, is often blamed on the stupidity or indifference of the pupil, when, as a matter of fact, the chief reason is that the teacher himself does not have the "concrete mind." The realization that our comprehension of meanings is very limited is not, as a rule, an inborn trait, but is acquired as a result of making applications, which develops the power of criticism. Unless this

trait is developed in the teacher himself, there is little likelihood that it will be developed in the pupil. And the fact of the matter is that many teachers, even when they are specialists, may, on occasion, have only a dim idea of what it is that they are talking about. The concrete mind is the mind with the disposition to test and develop meanings through applications and illustrations. This disposition needs cultivation so as to make it a settled habit, although the original tendency in this direction varies considerably in different individuals. "When Clerk Maxwell was a child, it is written that he had a mania for having everything explained to him, and that when people put him off with vague verbal accounts of any phenomenon he would interrupt them impatiently by saying, 'Yes, but I want you to tell me the *particular go* of it!'"[1]

How meanings may be developed and transformed through application was discussed in the preceding chapter. It should be emphasized that the difference between "specific" and "general" education does not turn on the presence or absence of transfer. The difference is a difference in range of transfer. Concepts may be developed so as to be effective within a certain area, but the area may be so contracted as to make the training narrow and purely technical. When subjects are taught in this fashion, we cannot assume that perspective or breadth of outlook will be secured if only a sufficient number of such subjects are taught.

[1] James, W. — *Pragmatism*, p. 197.

The remedy lies rather in a different method of presentation and a proper correlation of subjects, so that the particular subject or interest will be seen in its larger setting, in its relations to things at large. In the biological sciences, the concept of evolution affords a tremendous educational opportunity. Moreover, scientific method takes on a new meaning and imposes a new obligation when it is seen, not simply as a means for securing control over natural forces, but as a protection against the intolerance and cruelty of bigotry and blind belief. When viewed from this standpoint, the scientific ideal or concept of open-mindedness and impartiality becomes transferable from the laboratory and the classroom to the affairs of daily living. Similarly, the engineer who understands his subject in its relation to its effect upon human history gains a new appreciation of the forces that help to shape the destinies of the race, and learns, perhaps, to see bridges as symbols of political and social institutions and of the rise and fall of empires. Since we live in a world where everything is related to everything else, it seems antecedently likely that the distinction between cultural and vocational training is not based primarily on anything inherent in the subject matter, but rather on a difference in outlook, in mode of treatment, or range of application. It is possible for the specialist in the classics to be as restricted in his attitude as the shopkeeper; the colonel's lady and Judy O'Grady, as Kipling suggests, may turn out

to be very much alike. Given a wide range of application our meanings become indefinitely transferable, until, like a woman's hairpin, they can be used for almost any purpose. How knowledge may become interrelated so that our concepts of the most commonplace objects may lead out to the remotest corners of space and time and to the great problems of human history and destiny is illustrated by Huxley's lecture, "On a Piece of Chalk," which exemplifies in some detail the linkage of fact darkly symbolized to the poet by the flower in the crannied wall. In Huxley's opinion, "the man who should know the true history of the bit of chalk which every carpenter carries in his breeches pocket, though ignorant of all other history, is likely, if he will think his knowledge out to its ultimate results, to have a truer, and therefore a better, conception of this wonderful universe, and of man's relation to it, than the most learned student who is deep-read in the records of humanity and ignorant of those of nature." [1]

By some persons this emphasis upon concepts will perhaps be taken as the expression of an overdeveloped intellectualism, which chooses to neglect the emotional and esthetic side of our nature. Such an interpretation, however, rests on a misunderstanding of the place or function of meanings in experience. As was

[1] Huxley, T. — *Discourses, Biological and Geological*, p. 4. (For an application of this general standpoint to the teaching of geography, history, and science, see Dewey, J. — *Democracy and Education*, chs. 16 and 17.)

said before, meanings are only tools or agencies for realizing or facilitating adjustment. The foregoing discussion is entirely compatible with the view that the purpose of education consists in cultivating certain attitudes or appreciations. The study of history or science, for example, must result in the development of a historic or scientific "sense" or attitude; otherwise our knowledge remains purely formal and ornamental. Unless we acquire a certain "feel" or sense of values, we remain on the outside of the subject. The subjects in the curriculum are many-sided, and to awaken an all-round appreciation of them is a vital necessity. "Certainly one of the most unfortunate results of the 'finished' form in which both mathematical and scientific truths are presented lies in the very fact that the methods through which these results have been gained are seldom or never made conscious to the student. The narrowly utilitarian values may be sufficiently realized by their mastery; as far as the direct application of facts and principles is concerned, the direct presentation of the facts and principles may suffice. But the *unique* values of these subjects are of a different order, and require a different procedure if they are adequately to be realized." [1]

Meanings, then, are the instrumentalities for securing educational values. It is through meanings that our natural reactions or appreciations are directed toward new ends or are given new character. Our

[1] Bagley, W. C.— *Educational Values*, p. 202.

spontaneous love of home, for example, grows naturally into intelligent patriotism as we gain an insight into the character or meaning of our national ideals. The function of meanings is not to supplant direct appreciation, but to enrich and transform it. This transforming influence is indicated by Wordsworth when he says that he had learned

> To look on nature, not as in the hour
> Of thoughtless youth; but hearing oftentimes
> The still, sad music of humanity.

It is true, no doubt, that the contagion of enthusiasm and example is a vital element in education. This contagion, however, is not blind imitation, but rests on the perception of meanings; and "getting into the subject" is a process of modifying or changing qualitatively the character of the original reaction through insight. Meanings work both transformation and transferability, and they are the instruments upon which education must rely to realize its ends.

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CHAPTER IX

THE SOUL-SUBSTANCE THEORY

It has become apparent in the foregoing discussion that a theory of education is at bottom a theory regarding the nature of man and his place in the universe. The question of aims in education is inextricably bound up with questions such as evolution, democracy, and the nature of ideals and of duty; while the problem of method is determined largely by our conception of the nature of interest and of intelligence. It is not surprising, therefore, that our theory of education should be just an expression of our philosophy of life. Our view of man's nature will inevitably direct our choice of the methods that are suitable for his training and our selection of the ends that are most worth while.

What sort of being, then, is man? It is stated in Holy Writ that he was created a "living soul." That we are different in kind from the sticks and stones of our environment is a universal conviction. Inanimate objects are the slaves of circumstance, but man can choose his goal and bend circumstances to his will. He can foresee the future and shape his present conduct with reference to what is yet to come. To him, accordingly, it is given to have dominion over the

earth and to be master of his own destiny. Man is, in short, an intelligence, and hence he exercises the prerogatives of intelligence.

That intelligence is a tremendous factor in the world is too obvious to require discussion. The maxim that knowledge is power is, in a sense, simply an epitome of the whole course of civilization. Although physically less well equipped than most other living beings to succeed in the struggle for existence, man has been able, by dint of his intelligence, to control the forces of nature so as to secure possession of the earth and to establish himself in a position of unchallenged supremacy. As Voltaire remarks, this little being, five feet tall, apparently undertakes to constitute himself an exception to the laws of the universe. As against the universal laws of causation, he claims freedom of the will; instead of being simply a product and plaything of the forces of nature, he foresees the outcome of their operations and makes them the servants of his desires. Man has sometimes been called an enigma and a paradox, a product of nature and yet the master of nature. This unique status is the achievement of intelligence. But how does intelligence operate; in the phrase of Clerk Maxwell, what is the "particular go" of it? What does it mean to be a "living soul"?

As long as men are absorbed in the task of securing control over their environment, this question is not likely to become urgent. The important thing is the

result and not the process by which it is achieved. In the course of time, however, reflection became inevitable, one important reason being that reflection was necessary for educational practice. With the cultivation of reflection it appeared that intelligence usually found it easier to understand the things in its environment than to understand itself. It is the eye through which all things are perceived, but, like the eye, it has seemed unable to look at itself. The accounts that intelligence has given of itself are for the most part halting and full of contradiction; and this state of affairs naturally operated to the detriment of educational theory. One of the most influential of these earlier theories is known as the soul-substance theory. It is the doctrine that the soul is a "substance," an entity or thing, in much the same sense that physical objects are things. This theory has had a long career and has had much to do with the shaping of educational practice and with the selection of educational ends.

The nature of this doctrine may be presented most conveniently in connection with the theory of the philosopher Descartes, whose speculations on this subject have had an influence that extends down to the present day in determining popular thought. According to Descartes, whose name is associated with the beginnings of modern philosophy, the human soul is a substance or entity that has its seat in the brain, and more specifically in the pineal gland. The brain

being composed of two hemispheres which are bilaterally symmetrical to each other, nearly all its parts or constituents are arranged in pairs, one member of the pair being found on each of the hemispheres. Near the center of the brain, however, is found the pineal gland, which is an exception to the general rule. From the fact that it has no duplicate and that it is somewhat centrally located, Descartes inferred that it is probably the habitation of the intelligent power which gives direction to conscious behavior. The living body, in his view, is an elaborate and cleverly contrived mechanism, and the function of the brain is to connect the impulses coming in from the peripheral sense organs with the nerves that control the muscles. The brain, to use a modern figure of speech, is the central switchboard in a complicated telephone system. To a certain extent this switchboard is operated on the principle of the automatic telephone. The incoming currents work their way out in the form of motor discharges, without the help of a supervising intelligence. In some cases, however, appropriate response is possible only if the incoming excitation first calls up "central" stationed at the pineal gland, in order to get the right connections. The soul then sees to it that purposive activity occurs by deflecting the currents in such a way that the sensory stimulus is followed by the correct motor response.

It was suggested just now that this view still represents with reasonable accuracy the popular notion of

the soul. Such words as *soul, mind, consciousness,* are commonly associated with an entity or spiritual substance that is located somewhere in the head. By means of this hypothesis the explanation of intelligent behavior becomes fairly simple, or at least apparently so. The stimulations or currents coming in to the brain from the sense organs are like so many knocks on a door to arouse the sleeper within. The soul thereupon takes cognizance of the situation and decides what is to be done, and in conformity with this decision it switches the cerebral energy into the neural centers that control the muscles for the appropriate response.

In this system of Descartes the new feature was the explanation of the manner in which the soul was supposed to guide the body. Descartes drew a sharper line between mechanical and purposive behavior than had been done previously, and so he was compelled to show just how and where the soul interferes with the processes going on within the organism. But the belief in a soul was already old at the time of Descartes. It had become the basis of an important psychological and educational doctrine. While the soul is a unitary activity, it operates in a variety of ways, such as remembering, attending, imagining, reasoning, and willing. These different activities represent the various capacities or faculties of the soul, and so the psychology that is based on this belief has come to be known as the faculty psychology. We are able to remember, so it

assumes, because the soul has a faculty of memory, and to understand because the soul has a faculty of understanding. The educational corollary of this doctrine is the belief that if a faculty is trained in one direction, or with one set of material, it will be improved in all directions. The subject matter is relatively unimportant; the activity has pretty much the same *form* regardless of the material upon which it is employed. This doctrine has become known in modern parlance as the doctrine of formal discipline.

That this doctrine is peculiarly fitted to satisfy the imagination can scarcely be denied. The nicely adapted movements of a sailing vessel tacking into port, or of an automobile winding its way through a crowded thoroughfare are amply explained when we discover the function of the pilot at the helm or of the driver at the wheel. The explanation is sufficient in such cases, because we are concerned to account for the behavior of the vessel or automobile, and not for the behavior of the pilot or driver. But if it is the driver rather than the automobile that requires explanation, we have not progressed very far. How, in detail, does intelligence operate, how does it form conclusions and volitions? If we say that incoming currents arouse a certain spiritual substance to such activity as attention, deliberation, and volition, as a result of which the activities of the body are turned in a given direction, we have not shed any particular light on the nature of intelligence; we have

simply transferred intelligence to the driver, that is, the soul. Instead of analyzing the various steps and conditions that are involved in the procedure of intelligence, we have merely assigned to it a local habitation and a name. "'*Herr Pastor*, sure there be a horse inside,' called out the peasants to X after their spiritual shepherd had spent hours in explaining to them the construction of the locomotive. With a horse inside truly everything becomes clear, even though it be a queer enough sort of horse — the horse itself calls for no explanation!" [1]

Now the horse itself is the very thing that calls for explanation; and the moment we venture to explain we are beset with trouble. We soon find that it is, indeed, a "queer enough sort of horse." If the soul is a spiritual, nonspacial substance, it is not located anywhere in space, and how then can it have its seat in the brain? If it be said that the soul has its seat in the brain merely in the sense that the brain is the place where it operates, we must solve the puzzle how a thing can act on something else, without being at that place or at any place at all. But waiving the question how an immaterial substance can stimulate a nerve center, the doctrine appears to violate the principle of the conservation of energy; and we have, besides, the further difficulty that the soul is supposed to have an intimate knowledge of cerebral anatomy in order to know which nerve center is to be stimu-

[1] James, W. — *Principles of Psychology*, Vol. I, p. 29.

lated. It is pretty generally agreed among psychologists that we have no direct experience of the soul, as we have of colors, sounds, and pains. That is, the soul is an inference, and the justification for this inference is that it is supposed to explain intelligent behavior. Unless, therefore, this hypothetical soul makes it possible for us to have a clearer understanding of intelligent guidance than we have without it, there is no reason why we should entrust it with the high office of directing the activities of the body. It must either explain or else resign in favor of a more worthy successor.

But this is not the whole story. With the development of knowledge has come the conviction that certain fundamental claims made for the soul are without substantial foundation. According to the soul-substance theory, the function of the incoming currents is primarily to arouse the soul to activity. Reflection, deliberation, choice, and other mental operations are supposed to go on within the soul, more or less independently of the body. The eye and the ear reveal what is going on outside, but all decisions must be left to the soul. It seems undeniable, however, that conscious processes of all kinds are much more intimately dependent upon bodily processes. Everyday experiences bear witness to this fact, in a great variety of ways. A good dinner may put us in so amiable a frame of mind that we are willing to give our consent to a proposal which at another time we should decline to entertain. Similarly, drugs or strong drink may

lead a person to say and do things that under other circumstances he would consider quite beneath him. Bad weather may make us gloomy and irritable, exhaustion or lack of food interferes with clear thinking, the physical deterioration of old age brings with it an impairment of mental powers, and loss of blood or a blow on the head may cause a cessation of consciousness altogether. Mental development bears a certain correspondence to brain development, and an injury to the brain may result in a considerable change in mental and moral traits. Facts of this kind give strong support to the conclusion that the assumed independence of the soul is fictitious, that mental processes are conditioned, not by the soul, but by the brain.

This relation of dependence, or of correlation, between mental facts and cerebral processes has been worked out in considerable detail in the study of what is commonly known as the localization of function. The surface of the brain has been mapped out and to a certain extent different areas have been set aside as the seat of specific mental functions. Thus one area has been found to be the seat of vision, another is the seat of audition, a third is assigned to smell, a fourth is labeled motor area, etc. While much of the brain is still unaccounted for in this scheme, and while the quality of the evidence varies, the general principle is widely accepted. It is no longer considered necessary in most quarters to make mental function

dependent upon an agent, called the soul, behind the scenes; dependence on the brain seems to meet all the requirements. Materialism has managed to extract much comfort from this conclusion. According to materialism, the upshot of the whole matter is expressed in the celebrated remark that "the brain secretes thoughts as the liver secretes bile." Thoughts are regarded as the shadows, so to speak, of the brain-processes which they attend.

However that may be, these results have delivered a deathblow to the old faculty psychology. The various processes which were formerly supposed to be the operations of a single faculty are now known to be combinations or organizations of diverse operations. The visual center, for example, coöperates with other centers in certain cases of remembering, with different centers in imagining, and with still other centers in reading and speaking. Not only so, but each of the different "faculties" likewise represents a heterogeneous mass of activities. Visual memory and auditory memory involve distinct cerebral processes, and within visual memory we are obliged to make such distinctions as memory for color and memory for outline or form. A person's memory may be "good" in any one of these directions and less good in others. And the same is true if we consider such processes as reasoning, willing, speaking, and writing. In short, each "faculty" proves to be a collective name for a great variety of processes more or less diverse. These facts, together

with the mass of evidence on transfer of training, have led to the rejection of the theory and have made necessary a reconsideration of educational standards and aims.

It appears, then, that the attempt to explain the phenomena of our conscious existence by means of an entity or substance called a soul has turned out to be a failure. In the first place, this theory gives no insight into the operations of intelligence. It merely converts intelligence into a kind of thing, calls it the soul, and then offers this result as the explanation of conscious behavior. And, secondly, the whole drift of physiological and psychological knowledge goes to show that the soul or intelligence is not related to the body in the detached way that the driver is related to the automobile, but that the relation is of a much more intimate character. In other words, the conception of the soul as a distinct entity or thing must be given up as inadequate to the requirements of explanation.

It is interesting to observe that the doctrine of "faculties" was really killed by homeopathic treatment. The faculties kept growing smaller and smaller, until finally there was a distinct faculty for each experience, and this faculty was finally identified with a certain portion or function of the nervous system. At first there was just the unitary soul-substance, which was the bearer of all mental functions. Then "in the course of time this soul became the parent of numerous little souls, the faculties, each of which performed

functions essentially like those of its ancestor, though on a less extended scale. The faculty of perception, for example, served primarily as a carrier or medium for the facts of perception only; and a similar limitation was placed upon each of the other faculties. While this multiplication of entities called for no restatement of the problem of transfer, it introduced a significant complication. It suggested that each of the faculties must be trained separately. While it was still possible to believe that the training of observation in a given field would improve observation in all fields, it was not self-evident that training in observation would improve the faculties of reasoning and memory; and this fact suggests that the germ of the doctrine of specialized functions, and of "specific" as opposed to "general" education is embedded in the very core of the faculty psychology.

"This implication of the faculty psychology came to the surface in connection with the speculations on phrenology and the localization of function. When the process of localizing was once well started, there was no way of stopping it. In so far as any fact of experience possessed a distinctive trait, it could claim separate localization and the status of a 'faculty,' and so it became necessary to keep trimming down the faculties so as to make them conform to the facts of neurology. In the end this process led inevitably to the rejection of the belief in 'general' education. There was no longer any appreciable transfer because the

span of the faculties became so exceedingly narrow. This conclusion, it will be observed, adopts the premises of its rival. While the localization of function has been supposed to justify the most uncompromising opposition to the faculty psychology, it offers, in fact, a physiological basis or warrant for an astounding multiplication of the faculties. The hands are Esau's hands, but the voice is the voice of Jacob.

"The eventual result of this development, however, was the abandonment of the faculty psychology. The development was, in fact, just a diplomatic way of inducing the faculty psychology to commit suicide. When the faculties were no longer available as carriers or media for transmitting and applying previous training to new situations, their *raison d'être* had disappeared, and their place was taken by the neural processes which, at the outset, had served only in the capacity of humble concomitants. But the inexorable logic of the situation, in fact, threatens to carry us far beyond this point. If it is true, as James maintains, that no experience and no brain state ever recurs in its original form, education would seem to be a hopeless undertaking. To have had certain experiences, educational or otherwise, is altogether devoid of practical significance, if experience consists of a series of unrelated and nonrecurrent events. Unless the occurrences of yesterday abide in some fashion, they might as well never have happened at all. The fact, however, that the past does persist into the present

in some fashion and that education has a legitimate and necessary place in the scheme of things is not open to question, and so a new approach to the problem of transfer is demanded." [1]

It was pointed out, a while ago, that our view of man's nature, of intelligence, mind, or soul, has a bearing, not only on the methods of teaching, but on the ends that are set up as the controlling aims of education. With regard to method, the effect of the soul-substance theory has been to give warrant and authority to the doctrine of formal discipline. On the side of aims it has supported undemocratic ideals, such as the Aristotelian doctrine of culture, which was based on a conception of society as organized into superior and inferior classes. In this scheme the inferior class, the slaves, were mere tools; their function consisted in making it possible for the superior class to cultivate the refinements of life, to make life something attractive and worth while. This contrast led to a sharp opposition between training for production or efficiency and training for knowledge and appreciation, completely dissociated from the practical affairs of life. The first was practical and technical, the second was liberal and cultural. Education thus became a symbol of social status. The arts and crafts, the things that had to do with production, were reserved for the

[1] The above quotation is from an article by the writer, entitled "What is Transfer of Training?" in *School and Society*, Vol. IX, pp. 39, 40.

lower classes; to those of higher status all such things were degrading, and for them education became a badge of social distinction. This conception maintained itself, with some modification, throughout the succeeding centuries. In terms of the soul-substance theory it meant that in the system of training the soul was regarded either as a means or as an end. Knowledge and skill had value either for their bearing on practical affairs or on their own account, as enrichments or adornments of the soul. That they could not be both at the same time was apparently taken for granted.

The reason why this distinction between the two forms of training was maintained so tenaciously is to be sought both in the nature of the social organization and in the nature of the soul-substance theory. If we regard the soul as something more or less detached and independent, it follows that the way to cultivate the soul is to ascertain what sort of a thing it is and to proceed accordingly. Aristotle's conception of the soul was indeed different from that of the soul-substance theory, yet he likewise held to a certain detachment, and he was, therefore, entirely consistent in the doctrine that, since the distinctive trait of the soul is intelligence or thought, the highest or best life is a life devoted to speculation, to the cultivation of the intellect. But the whole matter stands on a different footing if we give a different interpretation to the term "soul." The point at issue, it will be observed,

is not whether man has a soul, but what is meant by soul. If we start with the evolutionary clue that man comes into the world with an endowment of impulses and tendencies which can find proper scope for expression only through a sharing in the meanings and purposes of others, there is an unmistakable shift of emphasis. Instead of detachment we have participation; the self finds its fulfilment, not in the cultivation of isolated pursuits and appreciations, but in the identification of the self with ends that are appreciated in their social significance, thus verifying the Scriptural saying that he who would save his life must learn to lose it.

It is needless to argue that the distinction which has been made between practical and cultural education is essentially undemocratic in character. Practical education, as thus conceived, is education without background, without perspective, and is identical with narrow vocationalism. Because the training is narrow, there is little opportunity for readjustment to changing conditions, and little opportunity to share in the life of one's own time and generation. A person thus trained is robbed of his spiritual birthright, and is obliged to let others do his thinking for him. Moreover, in these days when class consciousness and national consciousness are gaining new incentives, there is serious danger that future adjustments will be made on the basis of strength rather than of understanding and coöperation. It should

be borne in mind also that the injury which is done to the more fortunate or more privileged members of society who secure what is called a liberal education is equally real, though perhaps less obvious. They, too, fail to see the human issues in the affairs of life, and in the cultivation of certain appreciations which are conventionally regarded as cultural either lose sight of moral issues or develop a callous disregard of them. This kind of education has the same tendency in the direction of class education as its opposite, the ultrapractical education. Within the limits of his class the individual may exhibit a generous, humane spirit, while outside of these limits there may be neither generosity nor any genuine desire for understanding. Such education, whether cultural or technical, does not truly liberate; it does not make provision for progress. It is not practical, for it does not facilitate the intelligent adjustment of difficulties. It is not cultural, for it develops a sort of astigmatism, which obscures the human meaning of things; for, as Dewey has said, "there is perhaps no better definition of culture than that it is the capacity for constantly expanding in range and accuracy one's perception of meanings." [1]

While it is true that the soul-substance theory has maintained amiable relations with both the doctrine of formal discipline and with the traditional conception of culture, it may be noted that these two views do not agree very well with each other. It would

[1] Dewey, J.—*Democracy and Education*, p. 145.

hardly be consistent to maintain both that one kind of subject matter is as good as another, provided that the different faculties come into play, and also that one kind of subject matter is peculiarly suited to the leisure class and another to the working class. Yet both find a welcome within the hospitable limits of the soul-substance theory. Perhaps this is the reason why the culture theory found it so easy, when its claims were seriously challenged, to shift its position and to argue that its educational materials were of peculiar value from the standpoint of formal discipline. At the present time neither formal discipline nor culture, in the traditional sense, enjoys its old-time prestige. There is reason for the view that the former belief in transfer of training involved a kind of magic; and there is also reason for the view that the scorn of application and of the things that have to do with production is evidence of moral defect. To some extent, this change of sentiment was made inevitable by the change in conditions. The demands upon education are too detailed and too specific to leave much ground for the notion that the selection of subject matter is of minor importance. And the development of commerce and industry has been so tremendous that a patronizing attitude towards them is simply silly. It is true, no doubt, that profit-grabbing and exploitation do not become admirable when they are conducted on a large scale. But the failure to see that business need not mean just a low desire for gain, but that it

affords opportunity for large development of personality, means that we are still in bondage to tradition. Educational practice has more than once been forced to change its tactics by the mounting pressure of events, but progress in education that comes in this form is progress that is secured by following after, and not by leading the way. If education is to do its whole duty, it must continue to reflect, in the light of all available knowledge, upon the meaning of mind or intelligence, in order to find the clues to the meaning of education and to the selection of methods that are appropriate to its aims.

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CHAPTER X

THE DOCTRINE OF MENTAL STATES

It is generally conceded that the attempt to explain individual experience by the hypothesis of an underlying substance has ended in failure. The difficulties inherent in this theory may be summarized by saying that the theory is both useless and unintelligible for purposes of explanation, and that it attributes to the soul-substance an independence which is not borne out by the facts. The revision which naturally suggested itself in order to make the theory acceptable took the form of substituting the brain for the soul as the underlying reality, and of making the mental life consist of an aggregate or "stream" of "mental states." The mental was asserted to be made up of a succession of experiences, such as seeing, hearing, and touching, together with images, memories, and the like. These are not "attached" to anything, but are somehow dependent upon the brain, which furnishes all the support that is needed.

This expedient has been widely adopted. Modern psychology has become a "psychology without a soul." The body is no longer subservient to a single master spirit, the soul, but rather, if subservient at all, to an endless succession of rulers, each of which enjoys a

brief moment of authority and then passes away. Until death intervenes, the body, so it would seem, constantly brings into being the mental states by which it is directed and controlled.

This change in standpoint evidently offers certain advantages for the study of intelligence. Instead of being confronted by an inscrutable soul, which jealously guards the secret of the manner in which intelligence operates and the conditions involved in this operation, the investigator finds that all the important facts in the case are directly accessible to him. He is no longer obliged to take into account an agency screened from view behind the flux of mental states, but can confine himself to the experiences of which he has immediate knowledge, plus the operations of the brain, which can be studied by the methods of natural science. He has now the immense advantage that all the cards are in plain sight on the table.

As a result of this simplification, the incalculable element resulting from the decisions and volitions of an independent soul-substance is eliminated. Moreover, the investigator is fully protected against the intrusion of any element of spontaneity or choice. We ordinarily think of a conscious being as a being that has purposes or ends, and that devises ways and means for the realization of these ends. The reduction, however, of experience to mental states means that the behavior of a conscious being can be explained fully in causal terms, without reference to purposes or ends.

If the brain produces consciousness, this fact is just an instance of causation, pure and simple; and if the consciousness thus produced can in turn exert an influence upon the processes going on in the brain, this again is a case of causation and nothing more. The mental states produced by the brain possess no such independence as was attributed to the soul-substance, and hence spontaneity or purpose seems to have no standing ground. On this showing there is, in principle, no difference between intelligent behavior and the operations of a steam engine. Intelligent behavior does not differ in kind from any other behavior.

The rigidity of the causal connection appears more clearly when we examine it in detail. In the first place, the occurrence of a mental state is determined by the occurrence of a brain state, and the character of the mental state is entirely dependent upon the character of the brain state. After the mental state has come into being, it cannot form decisions or volitions independently of the brain, for if it could, these further changes would have no sufficient cause to explain them. Nor does the mental state have a choice as to the response which is to occur as a result of its presence. If we ask, How does the mental state know which brain area is to be stimulated in order to secure a given response? the answer is, of course, that it does not know. The response follows, not because the mental state has picked out a certain cerebral area for stimulation, but as the result of the mere

presence or "weight" or "impact" of the mental state. How this causal series is to be modified so as to make intelligent behavior different in kind from other forms of behavior it is not easy to see.

It is to be expected that this shift in standpoint from the soul-substance theory to the doctrine of mental states would find expression in corresponding changes in educational theory and practice. The change meant, first of all, the abandonment of the faculties and of the reliance on formal discipline. Moreover, since there was no longer a soul-substance in the background, the predominant concern of education was naturally with the mental states or impressions that were called forth. The new position favored a change from verbal symbols to things, to object lessons, nature study, and laboratory manipulation. With the departure of the soul-substance, there also came in a new notion of thinking. From the new standpoint it was no longer possible to regard thinking as an independent activity which made use of impressions as so much raw material; but thinking was necessarily conceived as something that had its origin in impressions, or as identifiable with a certain arranging or grouping of impressions.

In some respects, this change doubtless marked an advance. It meant that learning had become less abstract, that more attention was paid to the things which make up our environment. But the change did not prove to be an unmixed blessing. The emphasis upon

impressions led to a curious faith in the educative value of impressions quite apart from the use that was made of them. A peculiar virtue was supposed to reside in the handling of objects, in connection with the relations of numbers, even when the objects were just an incumbrance; and in much the same way considerable importance was attached to experiment without regard to its value for training in thinking or in the development of method. A teacher of domestic science comments on this as follows: "Teachers were exhorted, implored, commanded *not to tell the child anything he could be made to find out for himself.* Instead of telling our classes that it takes half an hour to boil a potato of average size, we thought we had painfully to make our unhappy pupils boil potato after potato of different sizes, estimate which was the potato of average size, and then estimate the average time of cooking. It would be as reasonable to decree that no child should have money spent for him that he did not earn himself; but, unfortunately, child labor laws, to regulate toilsome work without need, did not apply in the schoolroom, neither did inheritance laws, compelling the transmission of the knowledge-wealth of the fathers to the children. Hence we could insist on the girl in the domestic science class finding out for herself how long she should boil a potato, when we could have told her in four seconds by the clock."

The fundamental defect of the position under dis-

cussion is that it obscures the nature of thinking. It was assumed that impressions were passively received and that, after this had gone on for a time, thinking then somehow supervened, for the purpose of arranging and relating this material. Just how it operated was not made very clear. In general, however, it was held that induction consisted in gathering a multitude of these particulars and then evolving a general law or principle that was applicable to all of the particulars. Deduction, on the other hand, consisted in applying general principles to particular cases. What is overlooked in this account is the "spontaneity" of experience. Even casual observation is not a passive absorbing of external impressions; it means a process of *attending*, of reacting to the environment so as to bring about an adjustment. "The very word *perception* indicates that it is fundamentally not a receiving but a taking, an outreaching, a seizing. Why was it that the Greeks did not discover the world of physical forces, gravitation, steam, electricity, radium, and the gas-engine? Their world was like ours, these forces were working all about them. Their senses were as keen as ours. Their curiosity was as great, and as for their talent, Mr. Galton has declared that 'the average ability of the Athenian race was on the lowest possible estimate, very nearly two grades higher than our own [the English], that is, about as much as our race is above the African negro.' If the forces were there and the keenness of intelligence to discern them was there,

why were they not found out? The answer must be that the discovery of facts is not due to their presence nor to the possession of a mind capable of grasping them, but rather to the using of mind in the direction in which facts lie. The Greeks were not looking for the forces of physical nature — that is why they did not see them. Inventions and discoveries are remarkably simple after they have been made, but it is only the person who is hunting for something of that sort who makes them." [1]

When we turn to thinking, this element of quest, of "hunting for something," becomes unmistakable. Until we have a problem — which represents the need of adjustment — we have not even begun to think. The whole process works around the problem as its pivot. The suggested solution gives unity to the activity, in which observation, induction, and deduction become inextricably interwoven; and if we base our educational theory on the assumption that experience starts with impressions passively received, we are bound to go wrong.

For educational practice the error arising from this assumption is twofold. In the first place, as was said a moment ago, it encourages the tendency to overestimate the value of sensory experiences that serve no particular purpose in the development of thinking; and, secondly, it makes for mechanical treatment of the thinking process. The Herbartian formal steps, when fol-

[1] Moore, E. C. — *What is Education?* p. 178.

lowed closely, furnish an illustration of what is meant.[1] The Herbartian scheme is formulated on the basis of passively received impressions, which are to be arranged by the teacher in various orders or formations, like pawns on a chessboard. This accounts for the curious insensitiveness to the fact that the problem is the outstanding feature of the thinking process and that the steps overlap and crisscross and repeat themselves in the progress to the goal. When we are dealing, not with passive impressions, but with an intelligence engaged in the process of finding and testing suggestions, the formal steps, taken as a fixed plan of campaign, are precisely the thing to be avoided.

As tested by application to educational problems, then, the doctrine of mental states is not deserving of our complete confidence. There is ground for the suspicion that mental states are not facts at all, but abstractions, from which the breath of life has fled. This suspicion finds considerable support within the field of psychological theory itself. If it is true that the mental state, like the soul-substance, is just a convenient fiction, we may expect that it will make trouble somewhere for its inventors. This is just what we do find. The trouble is especially in evidence when we try to explain the relation between mind and body and when we try to give a consistent theory of the nature of knowledge.

[1] In this connection the reader is reminded of the discussion of thinking in Chapters VI and VII.

As regards the relation of mind and body, it will be observed that a mental state has no advantage over a substantial soul. Granted that we cannot conceive how this soul can act upon the brain, do we not have precisely the same difficulty if we withdraw the soul and substitute for it a string of mental states? The mental state, like the soul, is nonspacial, and for this reason it seems to have nothing in common with matter. It has been argued, by way of reply to this objection, that a criticism of this kind is wide of the mark, since so little is known about the real nature of causation. But if we turn to physical causation, we have at least the advantage that all our facts are, as it were, of the same denominator. Physical causes occupy space and conform to the law of the conservation of energy and the laws of motion. But the whole aspect of the situation undergoes a change the moment we attempt to make mental states operative causes. How shall we go about it to make a psychical cause, such as an idea, operate upon a physical fact? If it is to work as a cause, it must bring about some change in the movements of the material particles of the brain. But here lies the difficulty. Does the idea exert a push or pull upon these particles from the side, from the top, or from underneath? This suggestion, it will be said, is absurd, since the idea, being nonspacial, cannot be supposed to lay violent hands, in this crude physical fashion, upon matter. Precisely; but this means that it cannot do anything to matter at all. Matter is

spacial, while ideas are nonspacial; matter can exercise push and pull, while ideas cannot. The two seem to have no point of contact; they have their beings on different planes, which do not intersect. How there can be any dynamic relationship passes all understanding. To borrow an illustration quoted by James, we might as well try to imagine that a heavy freight train, broken in two in the middle, could be held together by the bond of affection between the fireman in the engine cab and the brakeman in the caboose.

The doctrine that the mind (or mental states) is in interaction with the body is known at the present time as interactionism. At present the adherents of this doctrine, among professional psychologists, are apparently in the minority. To many psychologists the difficulties urged against interactionism are well-nigh insuperable. They are disposed to take the view that merely to dismiss the soul while retaining the notion of interaction does not profit us much. If we are to rid ourselves effectively of the soul-tradition, we must do a thorough job and deny all causal relation between the mental and the physical. It is only on this basis that clear and consistent thinking is possible. A physical event must be explained wholly in terms of physical antecedents or causes, for the physical world is a closed system. It permits no interference on the part of nonphysical causes, and the principle of the conservation of energy remains unimpugned. Matter neither produces mind nor does mind in any way

affect the movements of matter. "Every brain process, like every reflex activity, is presumably the result of physicochemical processes. The assumption of a mysterious intuition or 'psychic force' adds nothing to the mechanistic explanation, even when the latter is most fragmentary." In explaining the behavior of the living organism, therefore, it is quite unnecessary, and even improper, to make any reference to desire, intention, or purpose. This view which denies all interaction between mind and matter is commonly known as the doctrine of parallelism.

To common sense a theory of this kind is bound to seem exceedingly strange. I go out to keep an appointment, or sit down to write a letter, yet these acts, according to parallelism, are in no wise influenced by my intention. So far as the actual execution of the act is concerned, consciousness is just an innocent onlooker, or concomitant; it has no right or power to interfere with the smooth operation of the neural machinery. Everything that goes on in the body must be explained in terms of physical causes, and in terms of physical causes alone. Our consciousness simply shows how the machinery is running; it tags along in much the same way that a man's shadow accompanies him down the street.

If it is objected that there are many activities which cannot be explained in mechanical terms alone, the reply is made that the possibilities of mechanism may be much greater than we ordinarily suppose. The

vital functions, for example, that go on within the body are marvelously complex and adaptive, yet no one imagines that they are presided over by a controlling intelligence. The body is not only able to perform complex operations of a uniform and more or less recurrent character, such as digestion, circulation, and adaptations to meet the changes in temperature, but it can also meet special emergencies. It can mend broken bones, heal a wound, and even resort to such extraordinary expedients as walling off an outlying portion of the lungs, in order that the disease which has found a foothold there may not spread to adjacent parts. Experiments with headless frogs have shown that many complicated acts of adjustment are possible without the intervention of intelligence; and sleepwalkers have been known to perform astounding feats when consciousness is apparently quite absent. In view of such facts, so it is argued, it seems rather dogmatic to say in advance that acts of volition cannot be explained in the same way. Why not, then, take the last remaining step and reduce all behavior to the type of mechanism?

It appears, then, that the reasons which dethroned the scholastic soul and substituted for it the stream of mental states now lead us by a remorseless logic to the conclusion that control by intelligence is a delusion. With this conclusion both interactionism and parallelism are fundamentally in agreement, although the implication is not always frankly admitted. Like

every other important theory concerning mind or intelligence, this view involves far-reaching consequences as regards our conceptions of conduct. If mechanism is fully competent to explain all forms of behavior, it is evident that we must revise our notions of responsibility. We do not attach praise or blame to a piece of mechanism, no matter how it works, and there is no reason why we should do so in the case of human beings. The suggestion is sometimes made, for example, that the criminal or minor offender who incurs our condemnation misbehaves so grievously because he is not put together just right; the mechanism is out of gear or else it is not adapted to its surroundings, like a locomotive that has left the track and tears up the landscape. The offender is not so much an evildoer as a pathological case. Views of this kind do not necessarily base themselves squarely upon psychological theory, but the logic by which the conclusions are reached have much in common in the two cases. Intelligence is subordinated to mechanism.

Conclusions of this kind are doubtless offensive to common sense, but the links in the chain of reasoning by which they are established are not easily broken. Consequently our thinking on the subject is apt to be more or less hazy; we neither wholly accept nor wholly deny. Individual responsibility and intelligent guidance are facts, but so is the explanation of behavior in terms of physical antecedents or conditions. We cannot go back to a doctrine which we have outgrown,

like that of the soul; but neither can we surrender ourselves completely to the tender mercies of mechanism. Such a state of indecision cannot be permanent. Sooner or later we shall be compelled to choose between the hard, cold facts and our belief that intelligent control and individual responsibility are a reality. There can be no escape from this issue, unless it should appear that we were mistaken in what we assumed to be the facts.

Before taking up the consideration of this possibility, we may repeat that the psychology of mental states is no more able to shed light on the question of the relation of intelligence to behavior than is the soul theory upon which it loves to heap aspersion. The doctrine of interaction encounters, as we have seen, much the same difficulties as those of its predecessor. And the pronunciamento of parallelism that there is no causal relation between mind and matter is chiefly of a negative character. It tells us what the relation of the two is not, although it does not deny that there is a relation of a peculiarly intimate character. If the pain that follows a burn is not caused by the changes that take place in the body as a result of a contact with the flame, neither is the occurrence of the pain just a matter of coincidence. But parallelism has not been able as yet to give a consistent or even intelligible account of the relation between mental states and cerebral processes. What it means to be a "living soul" is apparently as much of a mystery as ever.

But the case for mental states appears to even worse advantage, if we turn to what is usually called epistemology or theory of knowledge. Unfortunately, an adequate showing of the shortcomings, in this direction, of the doctrine under discussion would take us too far afield, so the chief underlying difficulty can only be indicated in passing. This difficulty centers in the conception of the nature of mental states. In spite of prodigious discussion and wrangling, our conception of the nature and function of mental states remains fundamentally unclear. If we look at a tree, for example, shall we call this experience a tree or shall we call it a mental state? Shall we say that the tree which we see is yonder by the brook, or that it is in our heads or in our minds? The question may be slurred over by vagueness of thinking, but it remains to haunt us nevertheless. If what we see is a tree, then we cannot call it a mental state and say that it is immaterial and nonspacial; and on the other hand, if it is a mental state, we cannot say that a mental state is yonder by the brook. In other words, if we first assume that we know only mental states and that these are as different as possible from matter, it is by no means evident how we can ever know anything about matter at all. We may speak of two series, one mental and the other physical, going on side by side, but there is no gainsaying the fact that we have direct access to but one of these two, and that what we commonly call the physical series is not physical at all but mental.

In the last resort, the doctrine of mental states explains intelligent behavior by explaining it away. It finds nothing in intelligent behavior that differentiates it in a significant way from the behavior of inanimate objects. This conclusion rests ultimately upon a misinterpretation of the facts of behavior. The discussion of this topic must be deferred to the next chapter, where it will be shown that the relation which this doctrine assumes to exist between consciousness and response is open to serious question and that a reinterpretation of the relationship brings with it a different conception of mind and of its relation to behavior. But enough has been said, perhaps, to justify the suspicion that mental states, as they have figured in the present discussion, are plain fictions. The trouble with the doctrine is that it is, in the end, just a halfway measure. If it is really necessary to reject the traditional soul-substance, we should be in earnest about it, and the doctrine in question is not in earnest at this point. Mental states are, in truth, nothing but a pale and ghostly image of the soul; or as one critic expresses it, they are "a mere echo, the faint rumor left behind by the disappearing 'soul' upon the air of philosophy." Instead of a compromise that merely reduces the soul to an attenuated form called mental state, our reinterpretation must be more thoroughgoing and must be conducted on an entirely different level. An adequate comprehension of the nature and function of intelli-

gence can be attained only by a reconsideration of the facts of behavior.

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CHAPTER XI

CONSCIOUSNESS AS BEHAVIOR

THE preceding discussion of soul-substance and of mental states has failed to give us a tenable theory, but has tended rather to deepen the mystery. What is this peculiar and significant something called consciousness? The theory of consciousness that we may happen to hold is bound to have important bearings on our theory of education and of life. But the subject is one of peculiar difficulty. The two theories already examined are merely representative of numerous attempts to solve the problem, but the quality of mystery has not been dispelled. Small wonder, then, that men have frequently become skeptical of explanation and have preferred to regard consciousness as the "divine spark" which bears witness to an origin in another world beyond the domain of natural law. Amid so much wreckage of theory, it may seem hazardous, not to say presumptuous, to raise once more the previous question. A careful survey of the situation, however, suggests that the failure of earlier efforts was not due primarily to anything occult or inscrutable in the nature of consciousness, but rather resulted from the fact that a tenable theory of consciousness could not be reached save on the basis of the knowl-

edge which we find placed at our disposal by modern science.

Given certain information regarding the development of intelligence and the physical conditions under which it operates, we may approach our problem with some assurance, or at least some hope, of success. On the other hand, the lack of this information is bound to prove fatal. An illustration or two may be given to indicate why the earliest speculations concerning consciousness inevitably resulted in disaster. As a parallel case we may take the notion of weight. That material bodies possess the attribute of weight is one of the commonest facts of our experience. This knowledge, moreover, is sufficiently accurate for the ordinary affairs of life, and is constantly applied in avoiding injury from falls, in cutting down trees, in building houses and bridges, in loading ships, etc. But what sort of thing is weight? What is it that causes unsupported bodies to fall? In the presence of this question we are tempted to make an examination of objects in order to find out what makes them behave that way, much as a child tries to pry open its rattle to see what it is that makes the noise. Such a procedure is on a level with that of the savage medicine man who tries to drive away sickness by a loud beating of drums, the sickness being regarded, not as a condition or state of the organism, but as a *thing* of some sort; e.g., an evil spirit, which has taken up its abode for the time being somewhere under the

skin of the afflicted individual. A supposition of this sort is of course as fallacious as it was historically inevitable. We know now that sickness is a name for the fact that the organs of the body are functioning improperly; but before this could become known it was necessary to have some information about the bodily organs and their functions. Similarly, the tendency to regard weight as a peculiar something which made objects tend to move toward a fixed point, or an absolute "down," could not be overcome until the discovery of the law of gravitation had taught us that there is no such absolute "down," but that bodies move only with reference to one another. In other words, sickness or weight are not things that a person carries about with him like a pocketknife or a watch, but are rather functions or modes of behavior which can be understood and described only in terms of the relations which things sustain to one another.

The tendency to treat functions or relations concerning which little is known as though they were things located somewhere in space is a perfectly natural and excusable tendency. We treat them like physical objects or qualities, because we are aware of no reason to the contrary. Too often, however, we yield to this tendency even when we are supposed to know better. The statement, for example, that objects fall to the ground because gravitation pulls them, may pass for a perfectly satisfactory explanation, simply because we do not stop to reflect that gravitation is the name

of a mode of behavior, not the name of an agent or cause. In other words, gravitation is just a name for falling, not a designation of a cause. Similarly, it may content us to be told that sliding is more difficult on wood than on ice because the friction is greater. We accept this as an explanation, because we overlook the fact that friction is synonymous with hard sliding; i.e., instead of offering an explanation, we are simply giving the fact a name. Or, again, we may be told that certain substances unite because they have an affinity for one another, that a man's word is as good as his bond because his character is above suspicion, or that he is scrupulously honest because he has a very exacting conscience. Thus do names afford a convenient escape from the painful labor of thinking.

These illustrations indicate, in a general way, a primitive conception of consciousness to which great philosophers have given the sanction of their authority, and which is still widely entertained. Men knew that they possessed consciousness, but having little knowledge about it in detail, they thought of it as a kind of thing located somewhere in the body, presumably in the head. The convenience of this notion is doubtless an important reason for its popularity, even though it is impossible to say how a nonspacial thing can be in the head or anywhere else, or how consciousness of this sort can control the operations of the body. But the growth of detailed information renders this conception increasingly difficult and converges more and

more upon the conclusion that consciousness, like sickness or weight, is in no proper sense a thing, but rather a function or mode of behavior.[1]

To put the matter differently, the conviction is gaining ground that our previous reflections on consciousness or mind have been vitiated by our preconceptions or mode of approach. To take for granted that the human individual has a mind somewhere about his person is much like assuming that a frog carries about under its skin a miscellaneous assortment of jumps. In the case of the frog it is evident enough that the jumps are nothing more than certain activities engaged in at various times, and that the proper way to get information about jumping is not to inspect the frog in order to locate the jumps, but to study the conditions (including the structure of the frog) under which the jumping takes place. But, as was pointed out a moment ago, this is less obvious when we are dealing with such matters as weight and sickness; and the attempt to apply such a procedure to consciousness or mind is bound, at first sight, to appear rather fantastic. Nevertheless there is considerable warrant for the view that consciousness, like jumping, is not a having but a doing, not a static possession, but a form of behavior.

If we approach the problem of mind from the side of behavior, we cannot fail to notice a marked differ-

[1] Cf. Ethel E. Sabin, "Giving up the Ghost," in the *Journal of Philosophy*, Vol. XVII, p. 701.

ence between the activities of those beings which are credited with consciousness and those which are not. This difference is usually indicated by saying that it consists in the ability to learn, or to profit by experience. The lack of intelligence shows itself in the inability to modify or adapt response so as to suit the needs of the occasion. In the experiments on the frog cited by James, it is shown that a frog deprived of the use of the higher brain centers and thus presumably unconscious, can perform all the complex acts of which a normal frog is capable. It can jump, swim, turn over when placed on its back, keep on the upper side, if a log on which it is seated is gently rolled over, etc. But there is something curiously mechanical and predictable about its acts. It behaves very much like an ingenious toy; i.e., it shows no disposition to vary its behavior so as to make it more suitable to the circumstances of the moment. It jumps or swims in response to the stimulus of a stick or of contact with water, but it does not seek to avoid the impact of a descending stick or go in search of water or of food. Each situation calls forth the same unvarying response, regardless of what has gone before.

This inflexible, machine-like form of behavior is sometimes exhibited by normal animals as well, when a variation in the behavior would be very much to their advantage. A fish, for example, if taken from the hook and thrown back into the water, is likely to take the same hook a second time; it has learned noth-

ing from the first experience. The baited hook remains for the fish the same object that it was on the first occasion, in the sense that it evokes precisely the same reaction.

The peculiar difficulty that some of the lower animals have in modifying their behavior as a result of previous disasters is strikingly shown by the story of Mobius's pike. "This celebrated pike was kept in a part of an aquarium separated by a glass plate from an adjoining part which contained several minnows. The pike made frequent dashes for the minnows and each time received a bump against the glass plate. After about three months of attempts to catch the minnows the pike became convinced that his efforts were fruitless and they were given up. The glass partition was then taken away. The pike, which had come to associate darting after the minnows with bumps on its nose, left the minnows unmolested thereafter, being apparently unaware of the removal of the impediment to catching its prey." [1] Instead of learning from one or two trials that the minnows had better be let alone, the fish had to have the new form of response quite literally pounded into its head, and even then it failed to associate its troubles with the glass partition in the aquarium.

This contrast between mechanical and intelligent behavior defines our problem. It remains to consider this contrast more in detail. From our present stand-

[1] Holmes, S. J. — *The Evolution of Animal Intelligence*, p. 219.

point intelligence or mind consists in the ability to adapt conduct to the needs of the moment. A high degree of intelligence, accordingly, means a high degree of flexibility or indeterminateness of response. As we go down the scale of animal intelligence, the behavior which at the upper end is relatively flexible and adaptable becomes more and more fixed and automatic. The lower down we go, the more rigid and unyielding the neural mechanism becomes. The nervous systems become more and more of the single-track variety, so that an incoming nerve current is bound to issue in a predetermined response, with no possibility of being switched off as it goes along. Animals with this kind of nervous system have a certain advantage over others from the fact that they are endowed from birth with a set of reflexes which make them incomparably more efficient than the young of the higher animals at the same age. Some of these lower animals have no period of infancy at all. Nature has so equipped them that they are able to make their way independently from the start. The mechanisms for running, dodging, seizing and eating their food are developed and operative from the first moment, and even complicated operations, such as nest building and the storing of honey, are provided for by the neural machinery. The chick pecks at small objects, the fish pursues its prey, and the snake strikes at an enemy, without having had any previous experience or education in the performance of these acts. The en-

vironment merely presses the button and the reflex mechanism does the rest.

The undoubted advantage, however, that lies in the possession of these convenient reflexes is bought with a price. The animals that are so enormously competent from the moment of birth never learn a great deal. In order to give these reflexes the efficiency that is required, the neural connections must apparently be rigid and inflexible. As a consequence, therefore, the animal keeps doing the same thing over and over again; its behavior is of the "touch and go" order, like pulling the hairtrigger of a gun; there is no opportunity for reflection and choice. These reflexes, however, serve as an acceptable substitute for intelligence as long as the environment is relatively simple, requiring no considerable variation in behavior. A nervous system of this kind cannot be modified or "educated" very appreciably; i.e., it is incapable of varying its behavior so as to respond differently to the same object. On the other hand, the more educable animal has a nervous system that is constantly undergoing changes as a result of its activities, so that its subsequent behavior is modified by what has gone before. This capacity for change, which makes it possible to achieve adaptations not provided for by the congenital structure of the nervous system, is especially marked in early life. It is not strange, therefore, that, in general, the period of infancy varies, as to length, with the teachability of the animal, and that it reaches a maxi-

mum of length in the case of human beings. In a sense it is true, of course, that education goes on throughout life, but when the golden period of youth is once past we tend to "settle into an equilibrium and live on what we learned when our interest was fresh and instinctive, without adding to the store. Outside of their own business, the ideas gained by men before they are twenty-five are practically the only ideas they will have in their lives. They *cannot* get anything new. Disinterested curiosity is past, the mental grooves and channels set, the power of assimilation gone." [1]

That living beings come into the world with certain preformed motor equipments is an undoubted fact. For the sake of simplicity these reflex adaptations have been represented in the foregoing account as though they operated in more or less complete independence of one another. If this were strictly true, however, consciousness could never arise. As a matter of fact, the structure of the nervous system tells a very different story. The various systems of response are not divided from one another by water-tight compartments, but present possibilities of overlapping that are indefinitely complex. The same motor apparatus, we find, may be set off by different stimulations, and conversely, the same stimulation may set off different systems of response; and the complications of response that are thus made possible provide the conditions for the appearance of consciousness upon the scene.

[1] James, W. — *Principles of Psychology*, Vol. II, p. 402.

An instance of a motor apparatus that is subject to more than one source of stimulation is furnished by the eye, which may be controlled by excitations that come in either from the retina or by way of the auditory nerve. In either case the neural impulse traverses a course that has been determined to some degree in advance. Similarly a sneeze may be inhibited by pinching the nose or upper lip, which means that an excitation coming from one source is offset by an excitation coming from another, both of them being somehow brought to bear upon the same motor apparatus. Stimulations may tend to strengthen or else to neutralize one another. Hence it is that men on the battle field may receive serious and even fatal wounds without being aware of the fact, and sights or sounds that would ordinarily attract our attention may pass unheeded because we are in a "brown" study, the mechanism being temporarily inhibited from that particular form of response. On the other hand, pain is increased by noise or light, and music gives an added relish to our food. With regard to excitations that are capable of setting off more than one form of response, a rich field of illustrations is offered by the facts of association. Thus a word like "fire" may suggest a conflagration, a military command, or the story of Prometheus. In view of the endless interlacings of the nervous system there can be no guarantee that an incoming stimulus will have the field all to itself, or that its course is laid down unalterably. Other pro-

cesses, whether favorable or unfavorable to it, are likely to be already on the ground, and dispersal into different systems of response may be its fate; and our behavior is in consequence rather a constant adaptation and organization of different tendencies than of activities operating in complete isolation and with immutable fixity.

This complexity of organization, with its attendant possibilities of discord and conflict in the responses that are set up, becomes more and more prominent as we go up the scale of animal life. The higher animals, like the lower, are provided by nature with various reflexes, but they are subject to greater modification as the result of mutual interference. In the human animal, for example, the mechanisms for the performance of such functions as breathing, swallowing, kicking, sucking, clutching, etc., are present from the start; and others, like walking and winking, make their appearance later on. Every muscle, in fact, can be controlled by some center other than the cerebral cortex. But the greater complexity of organization seems to bring with it a more pronounced tendency toward interference. The pike of our previous illustration continued to make dashes for the minnows, because the mechanism which made these dashes possible remained for a long time unmodified by the bumps against the glass plate. In a more highly organized animal the movement of attack and the movement of withdrawal (as a result of the bumps) would soon have

become associated, so that they would have been set off simultaneously. The movements would then have got in each other's way, so that the immediate outcome or resultant would have been a state of equilibrium, perhaps, or a much reduced movement, accompanied by a conflict or tension. If we imagine a puppet controlled by strings, so that a pull on one string makes the arm go up, while a pull on another string makes the arm go down, then if a number of these strings were pulled at once, the tendency of these pulls would be to set up a tension with comparatively little movement. The situation is converted into a deadlock.

It is in situations of this sort that consciousness has its origin. The appearance of consciousness means that mechanical behavior has gone into bankruptcy — and that its affairs have been placed in the hands of a receiver. To speak less metaphorically, the appearance of consciousness means that a new type of behavior supervenes. The clash of the conflicting responses is evidence that the organism has failed to adapt itself properly to its environment and is therefore in a state of maladjustment. If the organism is to secure adjustment, some method must be provided whereby these conflicting responses can be made to coöperate in the interests of an adaptive end. In the case of reflexes, such as digestion, this coöperation of different responses is brought about by the fact that certain connections are antecedently present in the nervous

system. Each of the various activities concerned in digestion plays its part quite as though it had an understanding with its fellows, or else were working under intelligent direction. But the direction is, of course, furnished by the neural organization, which was effected in the remote past, through Natural Selection or in some other way, and transmitted by heredity. However the organization may have been brought about, the result is admirable. Under normal conditions each of the activities concerned performs its service at the proper time and in the proper way. There is no crowding in order to get into action ahead of time; there is no undue interference of the one with the other. This orderliness and purposiveness is the result of our native endowment; and this organization is precisely what is lacking in the situations described a moment ago. In these situations the responses have become snarled up, and an organization must be provided which will fit the particular case; which means that a new form of behavior is required if adaptation to the environment is to be secured.

If we take our clue from the evolutionary concept of adaptation, this new behavior is due to the fact that a new stimulus comes upon the scene. Up to the moment that the living being becomes conscious, the mechanical stimulation is such as to produce inhibition and maladaptation. If this is to be followed by adaptive behavior, a different stimulus; i.e., a different sort of control over the organism, must supervene.

This is precisely what happens in conscious behavior, and if we can mark off the distinctive trait of this new stimulus, we shall have the explanation of consciousness.

This distinctive trait, however, is more easily verified than described. An automobile, for example, will run into a mess of broken glass as unhesitatingly as in any other direction; the tires respond to the situation by scattering the glass and exploding, but this is purely mechanical response. The pedestrian, on the contrary, picks his way carefully so as to avoid the glass. His response is of a totally different kind. In the first place, the previous activity of walking has come into conflict with this new reaction, "avoidance of the glass." And, secondly, a process of reorganization has taken place. The walking is not just discontinued, but is so modified as to leave room for the movement of avoidance. The pedestrian walks on, but keeps away from the glass. It would seem, therefore, that this reorganization of activity contains the secret of conscious behavior.

As was indicated previously, this reorganization means that the body is controlled by a different sort of stimulus. If, for example, a hungry person sees a tempting morsel, his mouth waters, and his jaw tends to move at the same time that his hand goes out towards the food. The various reactions are set off simultaneously, in accordance with the physiological law of habit, as though the nervous system were rehearsing beforehand all the steps in the act of eating.

The object is, so to speak, being grasped and eaten before it is even touched. As long as these various activities are just reactions to mechanical stimulations, they block one another and produce a state of tension and inhibition; but under the guidance of this new stimulus they take their place in an orderly sequence so as to bring about adaptive behavior.

This takes us to the center of the plot. How does the stimulus contrive to organize the activities into this orderly sequence? The reactions are present simultaneously, but the hand must first be extended, then the object must be grasped, then removed to the mouth and eaten. The apple as seen is something to be reached for, to be grasped, to be removed to the mouth, and to be eaten. This, as we commonly say, is what the object *means*. But the reactions are, as yet, more or less unorganized; which means that the stimulus is still inadequate. It is necessary to focus the attention upon the object so as to guide the hand in reaching and grasping. The apple as first perceived becomes a stimulus to further looking, the purpose of this further looking being to make the meaning more definite; i.e., to localize the object with as much precision as may be necessary for effective reaching and grasping. Until this is done the reaching is inhibited. Instead of the reaching, other activities, such as looking, are set up, which change the object, or give it the meaning that is necessary before conscious reaching can take place. The conflicting activities,

therefore, become organized into orderly conduct by inducing activities through which the stimulus acquires the further meanings that are necessary for this end.

In this connection the behavior of a dog, in the presence of a strange object, is instructive. The dog keeps a watchful eye on the object, keeps its ear cocked for possible sounds, and, if possible, takes an inventory of the smells inhering in the object. His activities, such as barking at the object, nipping it, and perhaps turning it over, are of a sort to give him a better stimulus. For the time being he is uncertain; he is prepared both to advance and to retreat, to eat the possible food and to fight the possible enemy. The present object, accordingly, acts as a stimulus to securing a better stimulus, or, as we sometimes say, to finding out what sort of object it really is. And this is characteristic of all conscious behavior. Psychologists are agreed that all consciousness involves some measure of attention. But attention is just an interrogation point; it is, as James says, a sentinel with the everlasting challenge, "Who goes there?" We are constantly aiming at new meanings; and this, when put into biological language, is equivalent to saying that conscious behavior is always a quest for a more adequate stimulus.

This behavior constitutes what is commonly called "consciousness." It appears, then, that consciousness is an abstract term, like squareness or justice. What is designated is not a distinct existence, but a behavior

of a certain kind. This behavior is unique in that it is behavior which is directed towards getting a better stimulus. A stimulus thus made over is a stimulus that is made more *meaningful;* and consciousness, accordingly, may be defined as *behavior that seeks a better stimulus or a more adequate meaning.*

The term "meaning," as used in this connection, is simply a name for the change that things undergo so as to become more effective for the control of behavior. As a result of such change, we become enabled to see the chair as something to sit on, the ball as something to be rolled or thrown, the pencil as something to be used for writing or drawing. When these changes have come about, the objects are said to have taken on new meanings.[1] Objects or situations become thus transformed through conscious behavior, which they themselves evoke and direct. Behavior of this kind is essentially *experimental, forward-looking, controlled by the future.*

This change which things undergo in the interests of behavior is the process by which experience grows from more to more. If a child accustomed to playing with dogs is bitten by a dog, the dog's appearance undergoes a change; he now looks "fierce" or "dangerous," and the behavior is varied accordingly. The objects of our environment thus undergo a progressive transformation, and

[1] Meaning in this sense is equivalent to *recognition* and must be distinguished carefully from concepts. (See pp. 106, 107.) The latter are objects of a new kind, which men themselves create and use for the effective control of behavior.

as things take on more meaning, there gradually emerges the everyday world of our normal adult experience. A trivial instance of this process is furnished by puzzle pictures. At first the picture as we see it is nothing but a mass of lines variously interlaced and spread over the page in a hit-and-miss fashion. But presently a human face emerges from the tangle. A moment before we were utterly unable to see it, but now it sticks out like a sore thumb; and the wonder is how we ever failed to see what is so flagrantly and palpably obvious. Once the face is discovered, it becomes next to impossible to see the picture as we saw it before the discovery was made. The lines remain unchanged in one sense, but not in another; they have a new character that marks a new adaptation, and this makes all the difference in the world.

Such astonishing transmutations are convincing evidence that seeing is not just a matter of passively "taking in" what is before our eyes. The object fairly flops over, as it were, and shows itself in a new perspective. The transformation of the puzzle picture is duplicated, though in a less spectacular way, in our everyday speech. The language that we speak has now a sound for us which it did not have before and which it cannot have for any one who is unable to understand it. The words that we use habitually acquire a mellowness from their meaning that completely overlies the harsh and discordant sounds which offend the uncomprehending ear. Tastes and smells change

their quality the moment we manage to recognize them, and the same is true of tactual experience, when the hand encounters strange objects in a dark room. The notion that our senses passively reflect their surroundings, as the sensitive plate in a camera reproduces its object, is contradicted at every point. How we shall perceive a thing is determined by the response that is evoked.

As our behavior becomes increasingly adapted to our environment, our experiences change in corresponding fashion. The fundamental rôle of behavior in this connection is easily overlooked, not only because the responses in ordinary experience are for the most part so slight as to escape detection, but also because we have forgotten the process by which the world has come to be for us what we now find it to be. It is difficult for us to imagine that familiar objects, such as tables, chairs, clocks, and pictures, to which we have become thoroughly adjusted, should ever have appeared different from what they do now. It is not self-evident to us that our perceptions, like our bodies, have had a long history and course of development. But perception likewise has its day of small beginnings. "The baby," as James says, "assailed by eyes, ears, nose, skin, and entrails at once, feels it all as one great, blooming, buzzing confusion"; and out of this buzzing confusion the things of everyday experience emerge in the course of time, much as objects take shape in the puzzle picture. The most remarkable

thing about the perception of children is their inability to see. The most outrageously transparent sleight of hand is entirely successful with them, and differences which are unmistakable to an adult with respect to the size, number, and color of objects, escape them completely.

If we draw the inference which facts like these seem to warrant; viz., that there is an exact correspondence between the objects of our experience and the responses taking place in the nervous system, we get another perspective on the meaning of consciousness. In the conscious situation there is always, by hypothesis, a conflict of responses and a process of reorganization and adjustment. There are, indeed, certain reactions, but these are undergoing modification of some sort. The responses, therefore, are partly complete and partly still in the making. They are partly complete in the sense that the nervous system has a native or acquired structure which gives direction to the reaction; but they are incomplete in that this structure is undergoing modification as a result of the conflict that is going on. The correspondence between response and object suggests that there must be a similar distinction or contrast on the side of the object. In part or to some extent, the object is a finished thing, but never wholly so. To be conscious is to give attention, and attention means a certain incompleteness, which, under certain conditions, is experienced as vagueness or a "blur." This peculiar quality of experience has some-

times been called the "psychic," and it bears witness to the fact that the objects of experience are undergoing reconstruction. The whole process is off its balance; and the unique way in which the object and the body coöperate and undergo concomitant changes to secure adjustment is what we have previously called consciousness or conscious behavior.

The shifting and "unfinished" character of our reactions appears when we consider the facts of association. If our attention lingers on an object, we are soon reminded of something else; our thoughts are as unstable as the waves of the sea. The plant that I stop to notice may remind me of the garden at home, of the Burbank experiments, of natural selection, or of the transiency of life. Likewise the color may bring to mind the blue of the ocean or the splendor of the setting sun; or again it may suggest the spectrum and ether waves, or problems of color contrast and theories of vision. It is as though our whole past were trying to crowd itself into the present moment. Things that have been previously associated with the object seem to come up on the slightest provocation; and in addition to these, all sorts of things that have never been associated directly with the present object may be brought in through association by similarity. Sometimes these associates just fail to arrive, and they haunt us like the elusive echo of a forgotten name. "What is the strange difference between an experience tasted for the first time and the same experience recog-

nized as familiar, as having been enjoyed before, though we cannot name it or say where or when? A tune, an odor, a flavor sometimes carry this inarticulate feeling of their familiarity so deep into our consciousness that we are fairly shaken by its mysterious emotional power. But strong and characteristic as this psychosis is — it probably is due to the submaximal excitement of widespreading associational brain-tracts — the only name we have for all its shadings is 'sense of familiarity.'" [1]

In the passage just quoted there is a hint of what seems to be the correct interpretation of these facts. The "submaximal excitement of widespreading associational brain-tracts" means that the present experience summarizes a long history, which is duly recorded in the nervous system. The physical response is like the germ cell in that it carries within itself potencies and tendencies dating far back into the forgotten past. Instead of being confined to a narrow groove, the response reverberates throughout the entire nervous system. Within this complex response are included an endless variety of nascent responses with which it has been previously associated or which are partly identical with it. The entire organization is a functional unit, but it is of such a kind that a slight shift in the center of gravity will upset the equilibrium and precipitate a new organization. Or, to speak less metaphorically, the response as a whole is a coördina-

[1] James, W. — *Principles of Psychology*, Vol. I, p. 252.

tion of shifting tendencies; it is, therefore, a changing process and not a completed fact. The whole of conscious life is a constant reorganization. Every moment is a transition; every adjustment is a stepping-stone to further adjustment.

With regard to the bearing of this interpretation of consciousness upon the problems of education, it is unnecessary to go into detail, for the reason that the entire foregoing discussion is, in a sense, an application of this doctrine to education. It will readily be seen, for example, that this theory of the changing stimulus commits us to the view that there can be no fixed and final aims for education or for life. There can be no final and complete adjustment; if there were, conduct would become automatic and consciousness would disappear. And as long as new adjustments must be made, there will be a constant re-creation and enlargement of our aims and ideals. A clue to the interpretation of interest and duty is found in the fact that interest or absorption in an activity means that the various reactions are unified or organized so as to coöperate for the attainment of an end, whereas the sense of duty is an indication that there is a conflict of ends. The process of thinking is the method of intelligent adjustment and means that the facts in the case are so organized or related that no basis is left for a conflict of tendencies; i.e., for reasonable doubt. In this process, things are used to represent other things; concepts are developed and

fixed by means of symbols, so as to enable them to take their place in the scheme of things as objects of a new kind, which serve as tools for thinking and furnish a convenient means of communication. Lastly, this position removes the basis for the conventional notion of culture, which had its origin in the belief that mind was a more or less detached existence, to be cultivated for its own sake, apart from the practical affairs of life. As an educational ideal this notion perpetuated the aristocratic conception of life; it cultivated, more or less deliberately, a disregard of, or even contempt for, legitimate human interests, and to that extent it hindered the development of common interests and the sense of a common life, which constitutes the ideal of democracy.

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CHAPTER XII

EDUCATION AND PHILOSOPHY

In any system of education there are two considerations that are of fundamental importance. One of these is the question of the aims which are to be realized; the other is the nature of the mind which is to receive the education. These two matters may be intimately conjoined. If, for example, the nature of the mind be conceived along the lines of the faculty psychology, there is considerable justification for the inference that the aim of education should be to furnish training on the basis of formal discipline. Similarly the conclusion that the mind is to be interpreted in terms of behavior leads naturally to the inference that there are no fixed aims in education, but that the proper test is the development of capacity for future growth. The question of aims in education is obviously bound up with the question of what is of supreme value in life; and this question, like that of the nature of mind, is commonly regarded as a philosophic problem. It is evident, therefore, that there is an intimate connection between education and philosophy.

This view is justified by history. If we turn to the eminent philosophers, such as Plato, Locke, Kant, and Spencer, who have written on education, we find that

their educational doctrines were, in the main, an application of their philosophical opinions. To them education was chiefly an agency for advancing a certain philosophy. Education has, in fact, always leaned heavily on philosophy, until the last few decades.

At present there is, perhaps, less sense of contact and mutual dependence between these two subjects than at any previous time. Various causes have led up to this result. For one thing, the development of science and of scientific method gave a tremendous impetus to educational investigations that had no direct connection with philosophic theory. It opened up great fields, such as those of educational psychology, administration, and tests and measurements, to which the investigator could retreat, in blissful seclusion from philosophic debate. Moreover, the exploitation of these fields yielded a substantial body of fact, which contrasted agreeably with the barrenness of earlier periods. As a result, scientific method was exalted, and workers in the field of education became eager to shake off all entangling alliances with philosophy. Another circumstance which strengthened the tendency to draw apart from philosophy was the fact that for a considerable period philosophy was more or less discredited by science generally. The reason for this it is not necessary to examine here, except to say that philosophy had failed to appreciate the significance of evolutionism and of science generally, and so had failed

to cultivate relations of understanding and coöperation, with the result that it became more and more isolated and ineffective. The development of science meant, indeed, that men were learning to control nature for their own purposes, but it also meant that science could become productive of new aims, that the law of evolution is constant re-creation or growth. Instead of following out this clue, philosophy tended to lose itself in speculations about an eternal and unchangeable reality, and so became more of a closet occupation than a guide of life.

The net result of this development has been to place philosophy on the defensive. Why have a philosophy at all? Speculation was all very well as long as the sciences were undeveloped and men could only guess at the nature of things. Such guessing was perhaps better than nothing at all, but it was, at best, only a very poor substitute for the detailed, painstaking processes of science. This method of progress is indeed slower and less showy than the dashing, irresponsible attacks made by philosophy, but in the end the longest way around is the shortest distance to the goal. In science we find a steady progress from generation to generation; facts are not accepted as facts until they have been rigorously tested and verified, but after this has been done they become a permanent possession. In philosophy, on the other hand, we have only a series of individual attempts, each of which begins by overthrowing the conclusions of its prede-

cessor. The same problems recur again and again, and the outstanding feature of the whole industry is the disagreement of the experts. There is considerable motion, but no progress.

This indictment of philosophy suffers somewhat from exaggeration, but this fact need not concern us just now. For present purposes the main contention may be admitted. There is no agreement, and there is little progress, as progress is measured in the sciences. If philosophy is regarded as a substitute for science or as an attempt to do the same sort of work as science, the case against it is most damaging and philosophy stands condemned.

The matter appears in a different light, however, if we take the position that the work of philosophy is essentially different from that of science. The difference may be pointed out most simply and clearly, perhaps, in connection with education. As was suggested in the first chapter, formal education brings with it the necessity of reflection on aims. It becomes necessary to determine what kind of result is to be secured. This question, it will be observed, is not a matter of scientific discovery in the same sense as was the discovery of the chemical composition of water or the distance from the earth to the nearest star. It is not a question of scientific discovery, because it is not a question of finding out something that is already existent, but of finding out what it is that we should really desire to achieve by means of educational agencies.

What sort of interests and tastes shall we cultivate, what kind of society shall we try to build up? The process can be guided in various directions; the issue is not simply one of fact, but of preference or ideals. Or, to put it differently, our preferences and ideals have much influence in determining what we shall accept as fact, with regard to the moral life. Hence a doctrine of aims is more akin to a political platform than to scientific discovery.

This does not mean, of course, that the selection of aims is determined by naked preference, without regard to the facts in the case. If an aim turns out to be at odds with the facts, it must be revised, or perhaps discarded. Perpetual motion, for example, ceases to be a rational aim when viewed in the light of the principles established by physics. Similarly the ideal of formal discipline goes by the board with the rejection of faculty psychology. But what are we to do when the facts themselves are in dispute, owing to a difference in preferences or scheme of values? The unhappy Omar Khayyam is overwhelmed in his inmost being by a sense of fatalism, whereas Carlyle and Henley undertake to defy the universe, because of an immediate realization that they are free. To the biological evolutionist the law of struggle and survival may tell the whole story of moral values, but to Tennyson science is, at best, a partial and pitifully inadequate account of experience.

> Who forged that other influence,
> That heat of inward evidence?

At first sight this may seem a disturbing situation. If the question of aims cannot be settled by appeal to fact, it is not immediately clear how we can deal with the question at all. Must we conclude that no preferences have any moral equality? Some people like one kind of aim and some another, just as some people are conservative by temperament while others are radical. *De gustibus non est disputandum.* Some people consider practical utility the best thing in life, others give first place to culture, still others have such preferences as moral character, or reputation, or power, or ease. So far as educational aims are concerned, there are all sorts of aims, just as there are all sorts of people, and back of that we cannot go.

Whether this is a sound philosophy we need not pause just now to inquire. We may note instead that, whether right or wrong, it is a philosophy, and not exactly an uncommon philosophy either. In its moral application it is the doctrine that might makes right. Since we cannot go back of the fact that human desires vary a great deal, and since the aims in which these desires find expression likewise vary, there is no escape from the conclusion, so it is argued, that no single aim can be imposed upon everybody. Each individual likes his own aim best, and when these aims prove to be incompatible with one another, there is no umpire to whom we can appeal, and the only thing to do is to let them fight it out. It is true that people often desire things which are not "good" for them, but the

term "good" is ambiguous in this connection. A life of dissipation is not good for a man in the sense that it injures him physically and morally and economically, but it is a good in the sense that he likes it, and if he prefers the dissipation to these other goods, how are we to prove to him that these other goods are more to be desired? It is always open to him to retort that this depends on the point of view and that he happens to hold a different point of view. Why should he be asked to yield his preference to that of some one else? To be sure, the good of others may be involved in his conduct. But he has, perhaps, already taken that into consideration and nevertheless come to the conclusion that he prefers to go on as before. To say that his conduct is wrong means simply that other people take more pleasure or satisfaction in a different kind of life. Well, each man to his taste.

Most people would undoubtedly take exception to this doctrine, which suggests that the position in question is philosophy and not science. If a proposition in science is more than just a working hypothesis, it has to be accepted by all who are competent to judge of the evidence, whether they like it or not. But the doctrine under discussion is fundamentally the expression of an attitude toward life, an attitude that has been generalized and is therefore called a philosophy. Viewed as an attitude this philosophy represents an attempt to vindicate the claim of our natural impulses

and desires as against restrictions imposed by an external authority. In the past it was the duty of the moral man to fight against the seductions of the world, the flesh and the devil. Our natural impulses were frequently supposed to be inherently evil and to require eradication. As against this, the contention of this doctrine is that our natural impulses have a right to life, liberty, and the pursuit of happiness. They must be taken as we find them, and the only criterion by which they can be evaluated is the law of struggle and survival of the fittest. The statement that the attitude is generalized means that the facts of psychology, of history, and of industrial and commercial life are all interpreted so as to bring them into line with this point of view, which makes it a philosophy; i.e., a comprehensive plan or program for conduct.

The doctrine is not new. It is discussed in Plato's *Republic*, at the point where Thrasymachus makes the assertion that justice is "the interest of the stronger." In recent times it has drawn considerable inspiration from the theory of evolution, which furnishes the suggestion that human conduct is an extension of the principle of struggle and survival. Man is a product of his environment; his desires and impulses are whatever they happen to be, and they furnish the only rational law of conduct. Morality is "the shadow of an outworn creed." This attitude is a philosophy when we generalize it by interpreting all the relevant facts so as to form a consistent system. When this is done

we are perhaps startled and repelled by the result, but specific instances of this attitude do not necessarily arouse a sense of horror. The jingoistic spirit, for example, of the maxim, "My country, right or wrong," may pass as fine patriotism; unrestricted competition, with the ruthless elimination of the unfit, may be viewed as a sound business principle; and the sanctification of childish whim may be accepted as educational gospel. When stripped of their trappings, however, and reduced to their fighting weight, what are these attitudes but offshoots of the parent doctrine that might makes right? And in so far as education promotes blind patriotism, makes earning power the measure of success, or spreads the faith that every desire or impulse of the child should claim our pious reverence, may it not fairly be charged with the offense of giving aid and comfort to this philosophy?

But, as has already been said, a philosophy is never more than one of various alternatives. There remain other lines of possible approach. It is true that nature, as revealed in the physical sciences, is indifferent to moral values. Its processes seem to have no reference to moral standards. In the language of Matthew Arnold:

> Streams will not curb their pride
> The just man not to entomb;
> Nor lightnings go aside
> To give his virtues room.
> Nor is that wind less rough which blows a good man's barge.[1]

[1] Arnold, M. — "Empedocles on Aetna."

If this be the case it would seem that we must take either of two roads. We may adopt the view that man, for all his vaunted morality, is no exception to the cosmic law, but is just a plaything of nature. His conduct is simply a resultant of forces, in much the same sense as is any other phenomenon of nature. Or we may hold that somehow man does constitute an exception. The claim that man is just a part of this nonmoral nature is rejected. "The Everlasting No had said: 'Behold, thou art fatherless, outcast, and the whole Universe is mine (the Devil's)': to which my whole Me now made answer: 'I am not thine, but Free, and forever hate thee!'" [1]

This quotation from Carlyle expresses an attitude, but in order to transform this attitude into a philosophy it must be generalized. The attitude must serve as a point of orientation for the organization of knowledge into a system. There must be a reinterpretation of the facts of science, of history, and of experience generally. One way of doing this is to take the position that nature, as science deals with it, is not the whole of reality, but merely the "visible emblem" or "outer garment" of a deeper reality. Nature is, indeed, just a blind mechanism; the inference, however, to be drawn from this is not that a man has no soul and no moral being, but that man is a much more signifi-

[1] Carlyle, T.—*Sartor Resartus*, ch. 7. (See also Henley's poem, "Out of the Night That Covers Me.")

cant revelation of reality than nature. The sources of our being lie in a realm beyond this world of fleeting phenomena. This is the road that leads to Platonism and Emersonian Transcendentalism, and it is the road that was taken by Carlyle. Or we may take the facts of the spiritual life as evidence of a soul-substance, which cannot be accounted for in terms of nature, but which must be attributed to a reality beyond nature. The history of thought presents many forms of philosophy which hold in common the doctrine that the facts of nature and of human life must find their ultimate explanation in a reality different in kind from our world of space and time.

This elucidation will perhaps serve to indicate the chief reason why philosophers are in perpetual disagreement with one another. More than to anything else these differences may be traced back to differences of conception as to the meaning and value of the moral life. As a consequence, the same facts are given widely different interpretations, in a way similar to that sometimes used in politics, when one platform may "point with pride," while the other "views with alarm." One position, for example, contends that desires, and the aims corresponding to them, must be accepted as they are, whereas the other insists that desires can and should be controlled in conformity with a moral standard. Consequently, there is much argument "about it and about," but there can be no essen-

tial agreement as long as this difference in moral attitude persists.

The issue that has just been raised is too large to be discussed here in detail, but we may indicate very briefly certain considerations in support of the view that there is a higher level than the principle that might makes right. It is true, no doubt, that when there is a conflict of desires the issue is sometimes decided by a test of strength. This fact is all too familiar in the experience of individuals and of nations. But is this necessarily the inevitable and appropriate method of adjustment? "When an individual settles a conflict of his own ideals, he certainly does not ordinarily let the various desires fight it out. There is often a struggle, and sometimes a particular impulse does a good deal of pushing and slugging, but, as a rule, the individual aims at an adjustment in which the various desires involved shall have consideration. The pressure of the community, his own 'larger' good, a 'remoter' good, any or all of these, and other considerations still may be brought in to check the force of immediate desire. That is to say, intelligence enters to adjust the conflict in the interest of a more comprehensive whole. And this is accomplished through the creation of a new goal in which the ideals in conflict have some sort of proportionate representation. This is the unique function of intelligence in crises of this sort. All that is necessary (and of course, we have done it repeatedly) is to extend this method to

conflicts between the ideals of different individuals, groups and nations." [1]

Fundamentally, the issue may be said to rest on the status of intelligence in the scheme of things. Is intelligence limited to the function of selecting the means for the realization of the ends that are set by our desires, or is it possible to cultivate desires, to create new ends? The discussions of our first five chapters in particular are based on the proposition that desires are subject to the direction of intelligence, and that the progressive building up of a moral order is man's finest achievement and highest ideal.

If it be conceded that desires may be directed and transformed by intelligence, there remains the question as to the standard by which this control is to be evaluated. Historically, the answers given to this question have usually been based on the belief that the standards for conduct must be obtained from a supersensuous or transcendental world. With Aristotle the highest life consisted in the intellectual contemplation of this supersensuous and eternal reality; with certain theological creeds it consisted in the uprooting of desires so as to make the individual wholly submissive to the divine will; with Kant it consisted in reverence for the categorical imperative or the moral

[1] Otto, M. C. — "Morality as Coercion or Persuasion"; *International Journal of Ethics*, Vol. XXXI, p. 18. This article is a remarkably clear and able discussion of the matter at issue. The reader is also referred to an article by the writer, "Justice Holmes on Natural Law and the Moral Ideal," in the same journal, Vol. XXIX, p. 397.

law. Ethical systems have been numerous and varied, but for the most part they have assumed a sharp cleavage between the world of nature and the world of moral conduct, in that we must base morality on something quite separate; e.g., on revelation, or intuition, or reason, or a distinct "moral sense."

The tendency of this procedure has always been to shift the emphasis from "growth" or the ideal of a completely socialized community to something else. In education it has led to fixed aims of all sorts; e.g., the traditional ideal of culture, with its arbitrary distinction between the cultural and the practical, and with its incredible blindness to the human quality of educational materials that did not happen to get listed as cultural at the outset. If morality and the things of the spirit are set apart in this fashion, the conclusion is natural that the spirit of man must be fed on a special diet, and equally natural that the bill of fare should be prescribed by tradition. Granted the separation of nature and morality, the conclusion is at least plausible that "the study of science tends not one whit toward humanization, toward refinement, toward temperamental regeneration; it tends only to develop an accurate trick of the senses, fine observation, crude intellectual strength." Historically, the standpoint has afforded a sanction for the cultivation of the virtues, not so much from a realization of their social significance as from a sense of abstract or "blind" duty. And in particular it has interfered with a sen-

sitiveness to human quality wherever it may exist, which is so emphatically an educational opportunity and so essential as a guarantee for the future.

It is true that if we deny the difference between man and nature no room is left for morality. But is it necessary to go to the other extreme and assert the existence of two wholly different worlds, in order to find a basis for morality? Is it not possible to maintain the integrity of morality and yet make morality a thing of the present world and of present living? This means, of course, a different attitude, with a different emphasis upon moral values; and the attempt to generalize this attitude leads to another system of philosophy. From this standpoint the emphasis falls naturally on the concept of growth, which determines the approach to the interpretation of such concepts as democracy, duty, thinking, transfer, and consciousness. It is an interpretation which gives a different outlook upon life and an increased significance to the meaning of what in religious phraseology is called the brotherhood of man and the coming of the Kingdom of Heaven upon earth.

To a considerable extent the standpoint presented in this book is simply a formulation of a tendency that has gained unmistakably in momentum in modern times. We are more and more disposed to recognize the fact that the problem of existence is a problem of securing increased control over natural and social agencies, so as to use them for human ends. At an

earlier period man found himself confronted with an environment that was not only alien, but frequently hostile. He might try to cajole, but he could not dictate. Only gradually did he discover that the forces of the environment could be made the servants of his will, that it was not necessary to "accept the universe." And he has profited by the discovery. If he finds that the surroundings are unhealthful, he drains the swamps, kills the mosquitoes, and provides himself with quinine; if the weather is too hot or too cold, he constructs electric fans or steam-heated houses; if the immediate vicinity is unproductive, he remedies the defect by irrigation or fertilization, by experimenting with crops, or by levying tribute on the four corners of the earth through elaborate systems of transportation. Instead of adapting himself to the environment, he compels the environment to adapt itself to him. How completely he has escaped from the law of evolution is evident from the fact that Natural Selection, in its original sense, no longer applies to human society. A being that can construct its own environment is no longer subject to the tyranny of the environment.

The realization that the events which make for human weal or woe can be controlled to an indefinite extent has come only since yesterday. Science in the modern sense is scarcely two centuries old; and even in our day people have objected to vaccination and rain-making on the ground that they were impious

interferences with the will of Providence. The development of science has made us less inclined to ask whether nature is favorable to man and much more interested to discover how nature may be used to serve the purposes of man. But as regards moral conduct, this change in point of view is still lagging by the way. Here it is not so clearly realized that the moral problem is the problem of gaining control over social forces so as to shape human motives and build up a truly democratic organization. The existence of injustice is not, *ipso facto*, a condemnation of the universe but a challenge to the mind and heart of man. A world in which there were no new ends to be created, no new adjustments to be made, would leave no room for intelligence and could impose no moral obligation.

Yet this insight is steadily gaining ground. Men are less disposed to blame the universe for moral imperfections, or to cling to a receding past, or to beguile themselves with Utopias from the work that is to be done. Instead, they are learning to face the future with a new sense of responsibility for the coming of a better moral order and for the development of personality. In proportion as impulses become transfused with sympathy and understanding, conduct becomes free and responsible, and men attain citizenship in the city not made with hands. For it is by virtue of this transformation that the sorry scheme of things may become molded into a world in which men

will dwell together in the freedom and equality of common devotion to ideal ends.

If education is to have a worthy part in this development, it must have a clear realization of the issues and a definite sense of direction. It may be freely conceded that the estrangement between education and philosophy has had certain compensations. The sense of freedom from tutelage and from the traditions of the past has brought to education a certain exhilaration and the disposition to observe and experiment. The conviction, though mistaken, that the problems of education could all be solved through the application of scientific method gave a powerful impetus to investigation and resulted in the acquisition of a most valuable body of organized knowledge. But in the emphasis upon statistics, methods, measurements, and practicality, the significance of ideals and appreciations has become obscured. There is danger of overlooking the big issues in fatuous admiration of our achievements in detail. Unless we know where we are going there is not much comfort in being assured that we are on the way and traveling fast. The result is likely to be that much of our progress is but seeming. We do not escape from the bondage of the past merely by issuing an Emancipation Proclamation. The old contrast between the cultural and the practical has tended to persist, with little appreciation of the fact that the cultural could be practical or that the practical could be cultural. Vocational subjects on

the one hand, and literature and science on the other, are still left too much without a significant social context; and to the extent that this is the case, the aims of culture are defeated and the ideal of democracy is left to take care of itself.

If education is to discharge its rightful function of leadership it must clarify its guiding ideals. The present is full of opportunity. Education has assumed a magnitude and importance that it never had before. The position of leadership has been thrust upon it. It has become in an emphatic sense the guardian of the future, and there is no way by which it can measure up to its responsibility and opportunity except through the cultivation and propagation of an attitude or spirit that will make men more human and life more rich and beautiful.

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